Stakeholder Model Representing Consumer Preferences for Housing in Saudi Arabia

Mohammad A Algrnas

A thesis submitted in partial fulfilment of the
Requirements of Liverpool John Moores University
For the degree of Doctor of Philosophy
DEC 2015

Acknowledgements

I would like to thank my god for his blessing and favour. I believe that without his help I could not have completed this work.

In addition, I would like to express my most honest and sincere gratitude to my two supervisors, Dr. Emma Mulliner and Dr. Andrew Ross, for their guidance, support, encouragement, moral help and constructive criticism during all the research and writing of this thesis. I am very pleased that I had the opportunity to work under their supervision to complete my PhD thesis. I will always express my personal thanks to them.

I must express my gratitude to my wife and my child (Abdulaziz) for their continued support and encouragement.

Moreover, I would like to express my personal thanks to my parents, brothers and sister and all of my family in Saudi Arabia for their encouragement over the entire period of this study.

Last but not the least; I would like to express my thanks to my colleagues and friends in the UK and Saudi Arabia.

Abstract

Adequate housing is an important issue for any society; no one can ignore the importance of providing adequate housing for citizens in any country. Purchasing a home is a major investment; it takes a huge part of people's income. Therefore, it is important to know what in the market is suitable for consumers, to categorise and analyse consumer preferences, and understand their changes in behaviour, looking at the differences in the demographics and the population segment in order to create a better home environment. However, solutions that are not consistent with consumer ambitions and self-concepts will not help to resolve the housing problem or provide satisfaction for consumers. Thus, it is important for policymakers to identify and understand both the consumers' preferences and the housing problem in order to devise effective spatial policies to manage housing demand. Housing in Saudi is an interesting and strategically important issue, because of the low level of home ownership, and the fact that the available homes do not match consumer demand. It would be interesting to understand consumer preferences and be able to provide a model clarifying the important home variables, and also to identify the cultural, economic and demographic influences on home buying. This could help stakeholders such as the government, developers and consumers themselves plan suitable homes. This study combines inductive and deductive approaches to investigate the housing problem in Saudi and to identify a suitable model of consumer preferences. Firstly, literature reviews were used to identify theories and put forward the relevant home variables. Secondly, mixed methods were used in the study for data gathering sequentially, by doing quantitative questionnaires in Saudi Arabia (with 752 respondents in the consumer survey and 102 in the professional survey), and qualitative interviews. Moreover, the inferential analysis of the questionnaires clarifies the differences in the answers between the genders, the regions where respondents live, and their occupations, and shows significant difference in some variables. The final home preferences model has been designed by using inductive factor analysis. Furthermore, the result shows differences between the consumers and professionals' views. As a final phase, the model was validated by conducting a focus group, from which some variables were added to the model.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

Chapter 1: Introduction

This chapter will deliver an introduction to the subject area of the study, focusing on the significance of the topic and research problem, the aim and objectives of the research, the benefits of the research, the importance of the study and the new knowledge it will provide. The theoretical framework will form the next section, and, finally, an overview of all the chapters included within the thesis will be provided.

1.1 The Research Problem

In most developed and developing countries, housing is a high priority subject and has a significant effect on citizens. Due to increasing population densities, there is an increasingly high demand for urban housing. The oil countries in the Arab Gulf have experienced relatively rapid development on all sides, where the governments have started to develop infrastructures and increase job opportunities, which has led to an expansion in population growth, which is connected to housing demand. Saudi Arabia is the biggest country in the region, and it has made remarkable progress in the development of its cities; there has been spectacular progress in the real estate and housing field over the last 60 years. However, with the social and cultural changes, people are beginning to have different housing preferences and priorities (Opoku et al., 2010), and this adds to the problems surrounding housing provision in the country.

Saudi Arabia has also witnessed one of the biggest demographic shifts internationally. Over 60 years, the urban community increased from 9% of the population to 83% (Struyk, 2005). Accelerated migration from the countryside and the desert to the cities has clearly created complications; looking at the history of housing up to today also explains the change in housing needs, and how this affects and increases the housing problem. For example, urban growth and development in the Riyadh metropolitan area caused a demographic imbalance in the living system, and the establishment of new towns close to Riyadh was seen as a solution (Shaibu et

al., 2004) to this increase in housing demand, which has grown considerably because of the urbanisation. The real estate market in Saudi faces great demands, and the prices of homes have increased massively, to a point where the majority of citizens are no longer able to own a home, where there is more than 984,000 unite empty (LJJ, 2015) because it unsuitable homes. The increase in population and inflation, and the variations in income levels have led to a gap between supply (developers) and demand (consumers), and a weakness in understanding the real needs of the current market (JEF, 2013). A 2013 report about Saudi Arabia by the International Monetary Fund stated that the challenges facing the Saudi government were now more focused on creating jobs, addressing housing needs and infrastructure development (IMF report, 2013). Although Saudi Arabia has a wide territory, with an area of 2,250,000 km², it also has a large population. According to census figures, the total population in the Kingdom rose from 7.01 million in 1974 to 29 million in 2013 (SGS, 2013). There has been a problem in terms of finding housing and lack of growth in the market in the last few years. The number of people who do not own their own house increased from 30% in 2004 to more than 60% in 2011, because of the population explosion in the previous 10 years (Bank Saudi Fransi, 2011). Estimates show that the Saudi housing market needs 1.65 million new units by 2015 (ibid). Adequate housing is an important issue for any society; with the backdrop to the housing problem in Saudi being increasing costs for homes, and decreasing consumer disposable income, a housing problem has appeared in the country where most of the population, such as middle- and low-income earners, are affected.

The Saudi government is strongly trying to update the new home supply regulations; however, the current home prices today compared to a citizen's monthly income make the dream of homeownership an unrealistic one for many workers and employees, especially those just at the beginning of their careers. This has resulted in the Saudi government issuing a law

regarding the land tax system for the first time in the Kingdom's history (in November 2015), which will take effect in 2016.

This is one indication that the Saudi government, which is represented by seven main state bodies in the housing problem, Ministry of Housing, Ministry of Finance, Ministry of Municipal and Rural Affairs, Ministry of Economy and Planning, Ministry of Justice, Ministry of Social Affairs and the Ministry of Water and Electricity, is working in cooperation with the private sector to find solutions. Knowledge of consumers' home preferences is important in devising solutions that will be implemented with these requirements and provide a suitable environment in which people can live. Consumer preference is a wide topic and it is a key to solving the housing problem, which affects the community from the social, cultural and economic aspects (Hemsley, 2010). However, solutions that are not consistent with consumer ambitions and self-concepts will not help to resolve the housing problem or provide consumer satisfaction (Sirgy, 2005). The housing market in Saudi is facing a lack of suitable units as a large number of homes are not suitable for the citizens because of the design, sizes or the price, as the real estate companies are not targeting the preferences and finances of the majority of the citizens, which has led to unsuitable units being built (LJJ, 2015).

Consumer preferences may be different from one country to another, from one city to another and from one person to another, where there are differences in the culture, society and housing requirements from one place to another. This study identifies the gap between consumer housing preferences in Saudi and the lack of a suitable supply, which is one of the reasons for the housing problem (Jazeera, 2014). Accordingly, there is a need for a model of consumer housing preferences focusing on new homes, which identifies consumers' needs and ascertains the neighbourhoods in which consumers prefer to live. It is important to know what in the market is suitable for consumers, to categorise and analyse consumer preferences, and understand their changes in behaviour by looking at the differences in the demographic and the

population segment in order to contribute to and create a better home environment. According to Opoku et al. (2010), housing in Saudi is an interesting and strategically important issue where knowledge of consumer preferences provides benefits and suggestions with regard to future work about housing, where it will be interesting to identify the influences on home buying from cultural, economic and demographic perspectives. In addition, it is important to understand which housing purchase factors are a priority for consumers. This could help stakeholders such as the government, developers and consumers themselves plan ahead (Opoku et al., 2010). The model for consumer preferences that will be designed in this study will show the consumers' desires and requirements in relation to the housing sector in Saudi Arabia. The model will provide the framework for the problem and then it will identify the points and requirements favoured by consumers, and look at how to solve the housing problem more quickly, according to the needs and the desires of the beneficiaries and within the laws and regulations of the government in designing and building housing.

1.2 Research Aim and Objectives

The aim of the research:

To develop and validate a model for housing preferences and choices in Saudi Arabia for new homes, which encompasses multiple stakeholder views.

To achieve this aim systematically, the following objectives have been devised:

1- Investigate the housing problem in Saudi Arabia and the role of the private sector, in order to determine the factors that influence homeownership and the reasons for the lack of homeowners.

2- Identify the key factors that influence housing preferences and determine the priority order of such factors, for the new homebuyer.

3- Develop a model that reflects housing preferences in Saudi Arabia for new homes, by integrating consumer and professional views of home preferences.

4- Validate the model, which will aid in the provision of suitable housing in Saudi Arabia.

Figure 1.1 below briefly outlines the intent of this research, starting from the research problem and how it is connected to the research objectives.

Figure 1-1 Intent of the research

1.3 Beneficiaries of the Research

No one can ignore the importance of providing adequate housing for citizens in any country or society; it is part of the needs of every society. It is significant for citizens, family and society. Purchasing or renting a home is a major investment; it takes a huge part of people's income, but it gives privacy, comfort and security to family members. As a result, for many consumers making a housing decision is highly complex, and needs to be calculated by considering

different variables. Furthermore, a lot of research is required to understand consumers' buying preferences and help them make a decision (Aliu et al., 2014). There are a number of reasons to focus on Saudi Arabia: it is one of the biggest countries in the Middle East, and it has the biggest real estate market in the Gulf. However, it also has a young demographic and a high urbanisation rate. This has led to massive growth in the real estate market due to high demand and the low number of people who own their own homes. Indeed, many government and private reports (such as JEF, 2013; Bank Saudi Fransi, 2011; Century 21, 2013; Alrajhi Bank Capital, 2013; Samba, 2010) on the Saudi real estate market mention that there is a major housing shortage. Moreover, modernisation has led to important changes in the structure of Saudi society and culture, although it is still different to other countries. Thus, it is important for policymakers to identify and understand the consumers' preferences and the housing problem in order to devise effective spatial policies to manage housing demand, which the real estate developers will have to satisfy to meet the needs of their customers. Identifying consumer behaviour enables understanding and prediction of their market actions (Gibler et al., 2003).

The Ministry of Housing in Saudi has started to list of people who required housing support – such as the elderly, those with big families, people on low salaries – who do not have their own home and who live in 'inappropriate' conditions (MOH, 2013). About 25% of homes in Saudi are inappropriate (cdsi, 2013); because of that, the Saudi government and the private sector are looking to find solutions to the housing problem, which increases every year (JEF, 2013). Due to the high number of citizens who have applied for housing, the Ministry of Housing does not have the ability to build enough homes, so it has decided to deliver land for citizens to develop individually with the private sector (MOH, 2013). The housing consumer preferences model for the private sector is much more useful than a model just for social housing, because the Ministry will not deliver homes anymore, and the needy people will have to develop their own homes. Knowledge the users' preferences is important in order to make housing solutions

suitable for them and create a better living environment (Kauko, 2006). Users' preferences is an important subject and is crucial in resolving the housing problem, as any results that are not consistent with consumer ambitions will be a problem for the community (Hemsley, 2010).

Users' preferences may be different from one country to another, from one city to another and from one person to another, where the cultural and social aspects in a community have different requirements from one place to another (Yang, 2003). A consumer preferences model would show the desires and requirements of consumers in relation to the housing sector in Saudi Arabia in order to frame the problem, identify the consumers' requirements, and build knowledge from these, to help solve the housing problem faster, according to the needs and the desires of the beneficiaries and within the government's laws and regulations relating to the designing and building of houses. The importance of a consumer preferences model in Saudi and the existence of the housing problem make knowledge of consumer preferences for housing necessary in order to:

- Establish the consumers' home preferences regarding internal and external elements.
- Determine the preferences for neighbourhood and location and understand why the land grant has not previously been helpful or appropriate.
- Determine if the units in the real estate market meet the consumers' preferences and if they are suitable for buyers.
- Understand what causes consumers to change their behaviour.
- Contribute to making the home environment better to live in.

1.4 Theoretical Framework

1.4.1 Theory of Consumer Behaviour

The real estate market depends on supply and demand; any shortage in demand is based on consumer behaviour, which is considered to be the main element that affects the real estate

market. Consumer behaviour models are developed to explain consumer buying decisions (Quester et al., 2011). Knowledge of specific behaviour patterns is the main way to identify consumer preferences. Figure 1.2 shows a consumer behaviour model, which is world-recognised. Consumers' consciousness is built up from stimuli and marketing, where the decision-making of the buying process combines consumer characteristics and psychological processes (Kotler et al., 2009). The consumer behaviour model has become the main explanation of stimulus and response; and marketers use it to identify what is going on in the consumer's consciousness with regard to marketing stimuli and buying decisions.

There are four categories of consumer psychology (motivation, perception, learning, and memory); however, the characteristics of a buyer are split into three categories (cultural characteristics, social characteristics and personal characteristics), which mainly affect consumer repetition behaviour (Kotler et al., 2009). There are five steps that the buyer takes when making a decision, which are: problem recognition, searching for information, evaluation of alternatives, purchase decision, and post-purchase behaviour (Blackwell, 2006; Kotler et al. 2009).

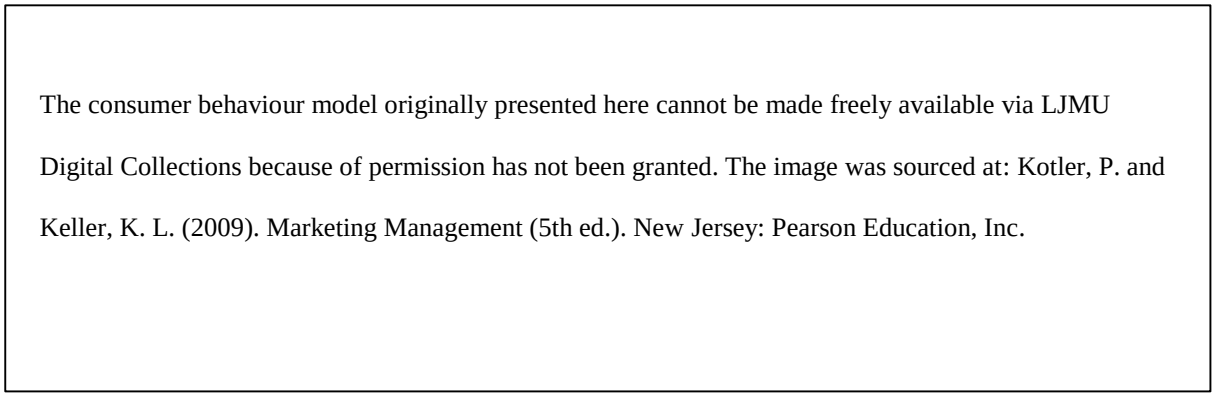

Figure 1-2 The consumer behaviour model (Kotler et al., 2009)

The decision-making process is explained as a progression of activities that lead the buyer to make a choice from a number of alternatives (Kotler et al., 2009). Marketing researchers have

designed a 'five category model' for the consumer buying decision, as shown in Figure 1.3. In theory, when consumers want to make a purchase there is a decision-making process they go through, which comprises the following: problem recognition, searching for information, evaluation of alternatives, purchase decision, and post-purchase behaviour.

Thus, it is clear that the buying process normally starts a long time before the actual purchase (Kotler et al., 2009). Sometimes the buyers do not go through all of the categories; sometimes they skip or reverse the order of some categories (Blackwell, 2006). However, this research will focus on this five-category model in order to reach the research aim and objectives.

The five-stage purchase decision-making process originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Kotler, P. and Keller, K. L.. (2009). Marketing Management (5th ed.). New Jersey: Pearson Education, Inc.

Figure 1-3 Five-stage purchase decision-making process (Kotler et al., 2009)

1.4.1.1 Problem Recognition Stage

The consumer process begins when the buyer recognises a problem or need in response to internal or external stimuli. When an individual recognises his or her real wants and needs are beyond his or her perceived current feelings or situation level, the difference may arouse a consumption desire, and activate the individual's purchase decision-making process (Bruner; et al., 2011). Saudi economic growth is very much related to the real estate and housing sector, which needs to recognise the consumers' preference for better residential conditions and that increasing housing prices does not stimulate consumers to buy housing. Most of the consumers' buying decisions are constrained by elements like time, budget and place, where the relative importance of these elements depends on the consumers' main preferences (Neal et al., 2007).

1.4.1.2 Searching for Information

When a consumer has identified their problem, they start to collect more information in order to find solutions. Moreover, the consumer starts looking for information to minimise uncertainty and risk in order to make a buying decision (Hoyer et al., 2010). When a consumer finds the best solution for them, the search ends; however, they first have to evaluate the alternatives (Quester et al., 2011).

1.4.1.3 Evaluation of Alternatives

The next phase is evaluating and selecting alternatives, which is defined as the standards and specifications used to compare different products and brands (Blackwell, 2006). The evaluative criteria normally include the product and service characteristics or preferences that will give consumers the benefits they desire or which are linked to the amount they are willing to pay (Hawkins et al., 2011; Webb, 2008). There are three aims when evaluating and selecting alternatives: the consumers want to satisfy their needs; then, they look for special benefits from the thing they want to buy; and, finally, they view each product's different attributes and ability to provide them with the desired benefits, which enables them to attain their real wants and needs (Kotler et al., 2009). Moreover, homebuyers choose those housing preferences that give more perceived value in their minds, as long as they are able to pay for these housing variables (Opoku et al., 2010).

1.4.1.4 Purchase Decisions

When consumers have passed the evaluation stage, their preferences become a choice, which leads to the intention of buying the preferred product (Kotler et al., 2009). Consumers sometimes do not perform all the steps; for example, their experiences with their preferred brand could enable them to make an immediate choice (Souza, et al., 2006). However, consumers in different markets could have different buying decisions based on their preferred variables (Kotler et al., 2009).

1.4.1.5 Post-Purchase Behaviour

The consumer is acting as three things in the consumption process: buyer, user and payer; where the customers are part of the group of consumers. A good after-sales process brings about customer satisfaction and loyalty (Quester et al., 2011). In the housing market, monitoring homebuyers' post-purchase behaviour gives better service quality and enables housing conditions to be provided that meet the consumers' post-purchase satisfaction. Furthermore, better housing facilities and environmental conditions affect the consumers' decision to buy a house and satisfy their needs (Saari et al., 2011).

1.4.2 Housing Self-Congruity Theory

With the theory of consumer behaviour and the buying decision, the stage of evaluating the alternatives leads to comparing the preferences, where people utilise their self-concept. Furthermore, choosing a home reflects the owner and his/her social class, personality traits, aesthetic preferences, and personal history, where the feeling of satisfaction with the future house is an effective way of evaluating the alternatives (Sirgy, 2005). Figure 1.4 shows housing preference elements and choices, where the residential occupant's image and the homebuyer's self-concept provides self-congruity for the homeowner, which is subject to mediation by self-consistency, self-esteem and social approval. However, the functional congruity is linked with the homebuyer's perception of the ideal utilitarian housing attributes, where the above elements are subject to moderators of experience, involvement and time pressure (Sirgy, 2005).

The model of housing preference and choice based on self-congruity theory originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Sirgy, M. J., Grzeskowiak, S. and Chenting, S. (2005). Explaining Housing Preference and Choice: The Role of Self-congruity and Functional Congruity, Journal of Housing and Built Environment, volume 20, pp. 329-347.ed.). New Jersey: Pearson Education, Inc.

Figure 1-4 Model of housing preference and choice based on self-congruity theory (Sirgy, 2005)

1.4.3 Housing Market

The housing market is defined as trade between consumers (homebuyers) and sellers (developers), which could be through direct sales by owners or sub-sales through agents (Jones and Watkins, 2009). The housing market can be split into three categories, as shown in Figure 1.5: first, the dwellings trading, which is the main category in the real estate market; the buying decisions happen in this category, where people buy a home for themselves or for investment. The rental housing is second, where the housing market investor rents out the home or asks an agent to manage it, and the final category is housing services provided by rental housing suppliers (Priemus 1984). This study investigates the dwellings trading market in Saudi, which comprises the housing options available to consumers.

The composition of the housing market originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Priemus, H. (1984). Housing Allowances in the Netherlands. Product of a Conservative or a Progressive Ideology? Delft: Delft University Press.Journal of Housing and Built Environment, volume 20, pp. 329-347.ed.). New Jersey: Pearson Education, Inc.

Figure 1-5 The composition of the housing market (Priemus, 1984)

Measuring and assessing the housing values in the market depends on consumer preferences, which vary in importance according to different people's life values, which reflect the evaluation of the variables, based on housing attributes and everyday activities (Lindberg et al., 1987). There are three approaches by which to measurement the housing preferences: the compositional approach, which is letting consumers select their preference from the housing variables, allowing them to indicate the relative importance of each variable; the decision plan nets, where consumers are asked to identify the housing variables that influence their housing preference and determine the level of the variable in the alternative; and the conjoint approach, which measures the consumers' evaluations of housing variables, and which consists of a number of attributes with different levels, where the consumers express their preference by ranking or rating. Where this housing measuring approach used in this study (Coolen, et al., 2001).

1.4.4 Homebuyers in Saudi

The Saudi real estate home market comprises various kinds of homes (semi-detached house, detached house and multi-storey building), but detached villas, semi-detached villas and flats appear to form the majority of types of home in the Kingdom. The homes market in the

Kingdom should be under perspective and deliver the kind of homes preferred by the consumer (Alotaibi, 2004). Owning a home is one of the strongest elements in creating a social community; important factors are the style, age, quality and appearance of a neighbourhood. The architecture of a home illustrates part of the local history, whilst the value of a home indicates the socio-economic status of the owner in the community (Alotaibi, 2004).

For example, when couples marry they normally want homes with enough space to meet the future growth of their families. In addition, neighbourhood facilities such as high-quality schools could be significant factors for homebuyers. The family's ability is also important in determining factors that could be achieved by the consumer from their home preferences dream, because the ability to deliver the required home preferences depends on family resources (ibid). Consumers with high incomes are most likely to enjoy the freedom to choose where to live, and those with high levels of education could be better able to acquire information about available homes than those who are less well educated. On the other hand, individual consumers are more likely to need consistent help to achieve their buying preferences (ibid). A better recognition of what human nature wants is of decisive significance in the shaping of the size and scale of a home and associated space. These preferences could relate to many ways of life, such as patterns of household formation and composition, housing choices, housing demographic, lifestyle, housing units' availability, and housing demand, housing mobility and neighbourhood changes.

Moreover, the availability of choice provides multiples designs and different specifications, which is important for the consumer. Thus, housing can be distributed according to different groups' household formation and composition, housing choices, housing construction and inventory change, and spatial patterns and consequences. It is necessary for the property market to provide a variety of housing preferences, neighbourhood quality, and location in relation to services. Home preferences (space and quality of housing), neighbourhood preferences,

environmental quality, location preferences and house prices influence homebuyers, as do, income, family size, and changes in lifestyle.

1.5 Overview of Chapters

The structure of the thesis (Figure 1.6) starts with this introduction, followed by the literature review and methodology in chapters 2, 3 and 4, and then the data collection and the analysis of the data with the models in chapters 5, 6, 7 and 8, whilst the final chapter provides the discussion and conclusion.

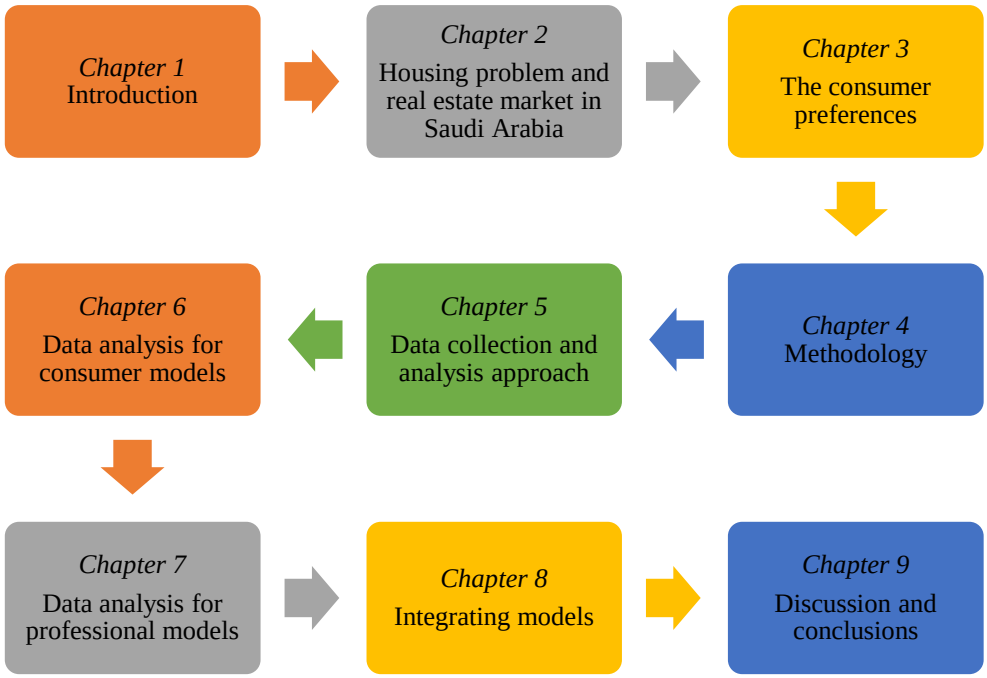

Figure 1-6 The research chapters

Chapter 1 provides an introduction to the research and overview of the topic and consists of the research problem, aim and objectives of this research, in addition to outlining the beneficiaries of the research and the contribution to knowledge.

Chapter 2 comprises a literature review relevant to the research, which is the housing problem and real estate market in Saudi Arabia, identification of the real estate market, and examination of the housing problem by analysing the reasons for it.

Chapter 3 provides a literature review of the consumer preferences, which consists of consumers' behaviour when choosing and buying things, and identification of the factors and variables by looking at previous theoretical and practical home models to create the models in this study.

Chapter 4 consists of the methodology; it provides the operational structure of the method in which the consumer preferences study will be carried out. It outlines the data collection procedures and analysis, and discusses the philosophy and approach of the research. Every element of the methodology is described and justified with unambiguous reasons for the choice of a particular method and materials.

Chapter 5 explains the data collection and analysis approach utilised. This chapter discusses the questionnaire data collection and analysis approach, and looks at the statistical tests that explore the differences between the groups in the questionnaires.

Chapters 6 and 7 provide the data analysis for the consumer and professional models. These two chapters provide data analysis to develop the models, also data checking, and the means, followed by descriptive statistics. The final stage in both chapters is the Factor Analysis, which is a method by which to regroup the variables to build up models.

Chapter 8 integrates the models. This chapter compares the questionnaires by using the mean scores. It then integrates and presents the consumer and professional models to discover the final housing models for consumers. Moreover, the end of this chapter provides the validation of the model.

Chapter 9 consists of a discussion and conclusions drawn from undertaking the study, including research limitations and contribution to knowledge made by this research with suggestions for future work.

1.6 Summary of the Chapter

This chapter has focused on the significance of the topic and research problem, the research proposition, the aim and objectives of the research, the benefits of the research, and the importance of the study and the new knowledge it brings. In Saudi Arabia, there is a need for a consumer model about housing, to understand the consumers' needs and identify demand and supply in the real estate market to count the preferences and recognise consumers' changes of behaviour. Moreover, the research proposition is, 'A model that represents housing consumer preferences, based on stakeholder views, can inform housing policy and practice in Saudi Arabia'.

Furthermore, to answer this question this study aims to develop and validate a model for housing preferences and choices in Saudi Arabia, which encompasses multiple stakeholder views, which will be acceptable and beneficial to the wellbeing of the consumer. On the other hand, the benefits of the research lie in framing the housing problem, and identifying the requirements which are favoured by consumers, and designing a model based upon this knowledge, to help solve the housing problem more quickly, where this study looks at the theory of consumer behaviour based on the buying process, in order to understand homebuyers' behaviours.

Chapter 2: Housing Problem and the Real Estate Market in Saudi Arabia

Chapter 2: Housing Problem and the Real Estate Market in Saudi Arabia

2.1 Introduction

This chapter comprises a literature review relevant to the research, which is the housing problem and real estate market in Saudi Arabia, identification of the real estate market, with the historical development in Saudi housing. Moreover, it provides knowledge about the main stakeholders in the housing sector. At the end of the chapter, the process of owning a home in Saudi Arabia is explained.

2.2 Importance of Housing

First, every human has the right to live in a suitable refuge, according to The Universal Declaration of Human Rights in 1948.

> Everyone has the right to a standard of living, adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control (UN-HABITAT, 2003. Article 25).

It is also important in this research to define the term household, which is as follows: all persons living under one roof or occupying a single housing unit, having either direct access to the outside (or to a public area) or a separate cooking facility. When the members of a household are related by blood or law, households can be single or multiple occupancy dwellings and may contain a wide variety of occupants: single people, young or growing nuclear families or large extended families; and can include working, retired, inactive or unemployed people (Levitas, et al. 2007).

Bad housing leads to social and economic problems, especially moral ones; it affects individuals, families, and societies negatively (Levitas, et al., 2007). Social problems in housing have always had and will continue to have a very close relationship with the socio-economic development of a nation, which affects the financial situation of the family (Robertson, 2008).

A roof over people's heads is one of a few necessities in life. Owning a home raises a household's self-esteem and life satisfaction, because it is viewed as a significant achievement for the household. Home ownership additionally increases a household's self-esteem and life satisfaction because it can be viewed as a significant household achievement. It also increases householders' feelings of stability, security, freedom, and achievement (Figure 2.1) (Yeich, 1994). Furthermore, it leads to parental self-esteem, which could result in greater emotional support for the household's children, as it improves the home environment in which a child lives, improves the child's cognitive ability and reduces behavioural problems (Teck-Hong, 2012).

The effect of home ownership on householders' feelings originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Yeich, S., Mowbray, C. T., Bybee, D. and Cohen, E. (1994). The Case for a "Supported Housing" Approach: A Study of Consumer Housing and Support Preferences. Psychosocial Rehabilitation Journal, 18)2), pp. 75-86.

Figure 2-1 Effect of home ownership on householders' feelings (Yeich, 1994)

However, whilst good housing can have a positive effect on the family, bad housing can negatively affect individuals, families, and societies (Levitas, et al., 2007). A home has a great influence on family life; it is considered to be a chief necessity, like food, clothing, education, and health, and is a serious element that affects the quality of life. A home is more than a prime

refuge; it offers multiple possibilities and facilities for a comfortable family life, reassurance, and safety (Levitas, et al. 2007). Housing is one of the longest established and most important areas of state intervention for improving and managing poor environmental conditions at the local level by using the government's terms and conditions (Bhatti et al., 1994). Designing residential neighbourhoods, in addition to designing houses, the conditions in the cities, and cultural habits and social reasons are all directly related to housing problems (Smith, 2011). Integration of the housing projects overlapping with other areas in a city, the elimination of discrimination in society and promoting residential integration will provide improved educational and employment opportunities for people on low and moderate incomes (Smith, 2011). Furthermore, it has been stated that solutions to housing problems will come through research, appropriate legislation, and proper planning (Sadi, 2009).

Housing is an important concern in both developed and developing countries, and is a significant problem in urban areas, particularly for developing countries, due to rising populations and the limited availability of land. Housing is not merely an architectural or engineering problem; a house plays a primary social role in human life, it is a framework for the family and for neighbourhoods. Adequate housing is of enormous importance to all family members and neighbourhood groups and the lack of adequate housing can lead to various problems (Robertson, 2008). A home is considered to be one of the main physical necessities of life, fourth after food, water, and health (Sadi, 2009). Home ownership has many advantages, according to a study prepared by (Dar Al Tamleek, 2014), which identified personal, social, and financial advantages in Saudi, as follows:

Personal: the house provides a place in which the family can grow, and the home and land can reflect the family's personal preferences and provide a supportive environment, which could result in better educational performance and better personal behaviour by the children. Owning a house gives people a sense of independence and self-reliance, whilst renting offers less

stability, as renters may not always be able to renew their leases. Families who own homes have increased security; the family and, in some cases, relatives, have a place to live.

Social: housing strongly influences civic behaviour and is the foundation of any community; homeowners are more likely than renters to be involved in their community. They are also more prone to volunteer in community and religious organisations. Ownership fosters a willingness to work with neighbours on shared concerns, such as better schools and crime prevention programmes. Because the quality of the neighbourhood affects the value of their property, homeowners see the neighbourhood as an extension of their property.

Financial: the home often represents a family's most significant financial investment; unlike renters, whose only return on their rent is the right to occupy a residence temporarily, homeowners view their monthly mortgage payments as a form of savings. Their personal wealth increases as the equity in their home increases, and it increases even more if the market value of the property improves.

2.3 Historical Development in Saudi Housing: the Traditional, Interim, and Contemporary Stages

During the 20th century, most Saudis lived in the desert as nomads (Al-Hathloul, and Edadan, 1995). In 1970, the government introduced a national objective, which was to provide suitable housing for Saudi citizens (Al-Rahman, 1994). From that time until 1990, there was high growth in the population, mostly in urban area (Telmesani, 1997). In addition, different social demographic groups made up the urban communities, such as traditional urbanites, internal migrants, and foreigners (Al-Hathloul, et al. 1995). Over the years, traditional houses and settlements have benefited from improved constructional values, design ideas, and technology for the refinement and use of vernacular building methods and materials (Alhubashi, 2012). These improvements have been developed through experimentation and innovation from the

experience of generations of builders. Different factors are important in the development of housing in Saudi Arabia. Moreover, from 1990, the transformation began when modern building materials became abundant in the Kingdom. At first, prototypes were built using the new materials. However, in many ways these prototypes resembled traditional houses. As building technologies continued to improve, and with the emergence of municipal systems, new types of modern houses started to appear that are very different from traditional ones (Bahammam, 2001).

2.3.1 The Traditional Stage

The houses were built from indigenous materials, relying on the construction experience of local people. The construction of these houses was facilitated by the following factors: local building materials such as mud and tree trunks were not expensive (AL-Otaibi, 2006), nor was labour, as local people assisted each other. In addition, these homes are small with multi-purpose rooms, and the flexible designs allowed for additions to the house according to the needs and financial ability of the family. Finally, the recyclable building materials could either be reused or disposed of without a negative environmental impact (Alhubashi, 2012). These traditional houses have improved in value and design, guided by the experience of local builders with the benefit of generations of experience behind them (Bahammam, 2001), and through technological improvements in the use of the available building materials. However, the traditional principles have been maintained in the design.

2.3.2 The Interim Stage

The main changes to traditional houses happened from 1959. At first, concrete and cement bricks were used, which enabled buildings to be stronger and take less time to build. However, although citizens started using the new materials for the new buildings, they maintained the traditional concept in the design, which is how the transitional style (popular houses) started

(Alhubashi, 2012). The transitional style is characterised by the openness of traditional houses but with a different layout (Bahammam, 2001).

2.3.3 The Contemporary Period

Government development in different projects started to give a new theme to the Saudi way of building homes; the contemporary houses provided a way to show the changes in Saudi that were taking place at different levels, starting from the economic and social, which appeared all over the Kingdom (Alhubashi, 2012). The use and abundance of the new building materials, such as cement and concrete, which had been utilised in the interim stage, now helped to make it feasible to undertake larger areas of new construction. In addition, the new model needed less maintenance and the houses were more comfortable; for example, many were equipped with air-conditioning systems. Thus, new, modern real estate property was established in the country, for example, the new detached homes, semi-detached homes (duplexes) and multi-block luxury apartments (Bahammam, 2001). This led to the formation of a new culture in Saudi housing.

2.4 Housing Problems in Saudi

Home ownership is a recent problem in Saudi, because the government had not expected owning a home to be very important for the Saudi people; however, since 2011 it has become more important due to the interest of social media and newspapers (Bank Saudi Fransi, 2011). With the Arab Spring, social media became the main way to express opinions, as it gives every person a way to establish his/her views. It is popular because there is no control of people's views and the Saudis use it to discuss their problems, which is one reason to use social media as a methods in this study. Currently, only 30% of Saudis own their living premises, while

globally the average rate of home ownership is 70% (Century21, 2013) (Figure 2.2).

The home ownership ratio originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Century21 Saudi Research and Advisory Reports, (2013). Riyadh Real Estate Market Overview (H1-2013). http://century21saudi.com/Pages/Items/Events/Details.aspx?id=271.

Figure 2-2 Home ownership ratio (Century21, 2013)

According to a study by the Jeddah Economic Forum (2013), about 67% of Saudi citizens are looking to buy a house, 37% of whom are living in rented accommodation and 30% of whom are living in 'inappropriate' conditions. The number of homes deemed to be inappropriate in Saudi Arabia is 1,218,830 units from a total of 4.6 million (cdsi, 2013). The current problems are growing because currently 61% of Saudis are aged between 15 and 26, and the population is growing by 2.5% yearly, and is expected to be 30 million by 2017 (JEF, 2013). The need is for 150,000 new houses every year; yet fewer than 50,000 a year are currently being built (JEF, 2013). According to Jones Lang LaSalle (2008), it was estimated in 2008 that there is a shortfall of some 500,000 dwellings across the Kingdom and that this shortfall could double to around 1,000,000 dwellings by 2012. Estimates show that the Saudi housing market needs 1.65 million new units by 2015 (Bank Saudi Fransi, 2011). According to these estimates, Jeddah requires 370,000 units, Riyadh 325,000 units, while the East Side and Al-Medina require three-quarters of the expected demand for the next five years (Bank Saudi Fransi, 2011). According to Ministry of Housing figures (2014), the latest number for families looking for a home is

620,889. However, in 2015 a Ministry advisor stated that 1.5 million units were needed (Eeskan, 2015). There was also a 10% decline in home prices in 2015 (LJJ, 2015).

However, according to the Ministry of Housing, it is difficult to find land for housing projects and the price of land in cities increases without reason. Policies have favoured residential, low-density development. This development has stimulated the expansion of land use in different directions far from the city centre, which is exacerbated by the country's mainly car-oriented transport policies, which increases the expansion of cities in a horizontal way (Aljoufie, 2013).

The collection of statistics and data is important to give a better view of the housing situation in Saudi, where housing may drain much of Saudi citizens' monthly salary and reduce their level of financial solvency. The disorganisation in housing provision also causes increases in the annual rents for homes and flats (Struyk, 2005). The housing market in Saudi Arabia is characterised by a shortage of supply coupled with increasing demand, which makes homeownership unaffordable for many. New units are urgently needed to provide middle- and low-income citizens with homes. The Saudi government is trying strongly to amend the home supply regulations. However, the current home price today compared to a citizen's monthly income makes the dream of homeownership an unrealistic one for many workers and employees, especially those just at the beginning their careers. Land prices are also a challenge. In the last 10 years, the price of residential lots has risen sharply, and some assessments indicate that land accounts for more than half of total building costs (JEF, 2013).

Rising house prices are a result of several factors, such as the lack of regulation in real estate contributions to development practices (sale of property in a plan before it is complete). In the current situation, there are a lot of problems; for example, some of the real estate contributions' investment has been stopped for more than ten years, which makes this sector weak, which affects the housing sector (Alotaibi, 2009). In addition, less labour availability, rising costs of

materials due to demand, design change, poor financial control on site and lack of previous experience severely affect the cost of construction of affordable housing (Sadi, 2009). It has become a challenging task for the government as well the private real estate sector in the Kingdom to provide affordable housing to lower- and medium-income families in urban areas mainly due to high demand, escalating prices and non-preference for (vertical expansion) apartments from developers (Sadi, 2009).

The housing problems in Saudi include the government's efforts to reduce the amount of energy used;, perhaps the oil price crisis encouraged the government to raise energy prices. At the end of 2015, the Saudi government made changes in the electricity, restricted the use of water and gas , where the aim was to reduce the use, and establish sustainable homes (Argaam, 2015). It was envisioned that these changes could be a milestone in using environmentally friendly buildings, where the government regulation could play the main role in that. This is important for the future because the government is planning to raise the prices again in five years' time (Aljazeera, 2015).

Many of Saudi architects who work in housing field think the government should not give building permission without applying the green building concept; in other Middle Eastern cities such as Dubai this rules has applied since 2014, and it reduces the utility bills cost with by about 30% which help in the energy efficiency of the building (Al Khaleej, 2014). In Saudi, some professionals in the field of engineering construction and environmental sciences started an organisation called the Saudi Green Building Council, which aims to promote sustainable buildings and the practices and knowledge about green buildings. The organisation put forward five standards that could reduce energy use by 40% in Saudi homes, starting from choosing the right location to build the homes, reducing the use of energy, water resources, building materials and, finally, improving the quality of the air inside the homes (Aaawsat, 2008).

2.5 The Real Estate Market in Saudi Arabia

As a UN rule, paying for a house should not take more than 30% of a person's monthly salary, but in Saudi it takes 40% to 50% (JEF, 2013). Coupled with the accelerated population growth, Saudi Arabia's lack of affordable housing and lack of jobs for the young are complicating social norms because many young citizens are unable to marry and buy homes (Opoku, et al., 2013). Since many Saudis work in public administration jobs – education, health and public utilities – under the umbrella of the public sector, they earn less than SR8,000 a month (about £1,300) (Alrajhi Bank Capital, 2013; SAMBA, 2010). Prevailing property prices are beyond their range of affordability, which is equal to the value of a small residential plot of land (250 square metres) in Riyadh, which cost a person's average total income for seven years (Bank Saudi Fransi, 2011). Most Saudis consider a house purchase as a 'once in a lifetime' investment, so they save enough money to make the purchase or construct the house on their own. Whether this dream will be fulfilled or this wish is feasible is another issue but a Saudi, even if poor, has very high expectations (perhaps due to religious faith) and they will bide their time until those expectations are fulfilled. In Saudi, the citizens believe it is the government's responsibility to provide them with homes, and they accept waiting for 10 years for this to happen. This belief makes it difficult to identify who are in greatest need of a home in Saudi; it may be possible to find low-income consumers in Saudi Arabia wishing to own residential units by paying cash (Opoku, et al 2013).

With the high increase in housing prices in Saudi Arabia, there is a debate about the likelihood of an increase on the economic side, which could be a global phenomenon, not just in Saudi. This can be seen by looking at a comparison standard called 'repeater average home ownership' (Median Multiple), which is a refined average house price divided by average net household income. According to the World Bank standards and the United Nations, the repeater average for owning a home is at least three, where the home's price is appropriate in economic terms.

This means that, if the price of the house is three, it is defined as equal to the sum of all individual salaries for three years, whilst if it is more than three that means the price is a little high, but if it is more than five is very high. However, a global study (seventh Annual Demographic International Housing Affordability Survey, 2011) looked at average home ownership in several world cities, and indicated that the repeater average for owning a home in America is 3.0. However, the average in big US cities such as New York was 6.1 and in London it was 6.5 whilst, the most expensive city in the world was Hong Kong, with an average of 11.4.

On the other hand, when we look at the average of owning a home in Saudi Arabia, the average government employee salary, as mentioned earlier, is about SR8,000 a month (about £1,300) (Alrajhi Bank Capital, 2013; SAMBA, 2010). However, the average house price, according to a study in 2011 by a French bank (Bank Sauid Fransi, 2011), is about 1.23 million riyals (£220, 000). Based on these figures, the 'average repeater' in Saudi Arabia is 14, which means that a government employee needs to collect all his salary for 14 years to own a home. This figure is higher than for most of the world's major cities, and clearly indicates that it is impossibility for Saudis to own a home at these prices (Al-yaum newspaper, 2011). In addition, it is clear that what is happening in the real estate market in Saudi Arabia is unnatural. This shows that there is a real need to resolve the root problem, which is the high price of land, especially as the price of land has become more than 50% of the home cost, and also the construction cost, and is therefore a major cause of these unjustified rises. Comparing house prices in Saudi with different countries in the world shows remarkable differences. Therefore, in Saudi there is no need for the government to provide affordable housing, but there is a need to organise, realise and control the market to support the citizens and the private sector.

Given rising demand, limited supply, low rates of ownership, rapid urbanisation and population growth, the housing sector in Saudi Arabia faces significant challenges, most especially in

providing adequate housing for middle- and low-income households. In the past, there was only one way to buy a house: with cash, and it has been the first option for the citizens to buy homes until today. However, with the high rise in prices, people now cannot buy homes with cash, and they worry about taking out mortgages. Based on the residential real estate index (Table 2.1) issued by the Ministry of Justice, the price of land in Riyadh increased by 43% from 2009 to 2012, and the average cost for residential land is about 2450 SR (about £400 per square metre) in big cities such as Riyadh.

Table 2-1 Index issued by the Ministry of Justice showing real estate prices from 2009 to 2012 in Riyadh (Riyadh News, 2013)

The index issued by the Ministry of Justice showing real estate prices from 2009 to 2012 in Riyadh originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The table was sourced at: Alriyadh.com, (2010). Land space of the most important elements that depend upon the capacity of the city of Riyadh. http://www.alriyadh.com/2010/12/21/article587258.html.

Consumer confidence is a key factor in the health of the housing market, because housing investment requires an optimistic outlook about both the general economy and the individual's financial condition. Housing price inflation is economically important and has a positive effect on consumer spending (Lei Wen et al., 2013); however, there is less confidence from the citizens about real estate mortgages, which are less than 20% of banks' lending (Alrajhi Bank

Capital, 2013), and this is due to people not being interested in buying homes with a long-term payment.

Different factors have contributed to the significant increase in housing and construction costs over the past few years: corruption in selling land, speculative purchase of land, the absence of taxes on land, high demand for housing, and the high rate of population growth in Riyadh (Alfouzan, 2013).

In Saudi, buying land and leaving it undeveloped for years is one of the ways that money is invested, because there is no tax on land. This has led to about 70% of urban land in Riyadh being left undeveloped (Alriyadh, 2010). According to the Ministry of Housing, it is difficult to find land for housing projects and the price of land in cities increases without reason. With the price trend rising faster for land and housing, there will be a high risk in borrowing money to buy land or a house; such a phenomenon has implications for the desirability of home-ownership and households' tenure decisions. Risk is an important consideration in tenure choice because it can adversely affect the household's situation (Mok, 2002). A potential government role is to raise awareness among people about the risk of borrowing money to buy land or a house at a high price (Dröes et al, 2011). The government can also work to show that mortgage market reforms lead to a significant increase in housing construction (Opoku, et al 2013). The introduction of the mortgage system recommend by the Ministry of Housing in 2013 will help to finance real estate property, by increasing the number of participants financing the real estate sector, such as banks and finance companies, which will need to provide 'regulatory devices' about the organisations and a registration system for the property (Alrajhi Bank Capital, 2013). The new law will be a serious improvement in start-up housing finance for a huge number of Saudi citizens with low and middle monthly incomes. The law will offer a way of fixing the old regulations in the housing sector (Arab News, 2010). By effectively providing collateral, the mortgage law will give banks the reassurance they need to

expand lending. However, the mortgage law will not transform the housing finance landscape overnight; it will need a long time to change (Samba Financial Group, 2010).

With the increase of land prices, which affect the housing prices, different sides have provided advice to the Saudi government concerning the imposition of a tax for land space, such as a report from the International Monetary Fund (2014) which called on Saudi Arabia to introduce a land tax. A land tax is expected to be the solution to the housing problem by unlocking land and spurring on real estate activity and landowners to start development (Oxford Business Group, 2014). Moreover, there is a tendency in many countries of the world to impose payable fees annually on unused land within the urban boundary of cities, and it has been proven that these fees are efficiency to reduce prices. The land tax is targeting non-productive wealth, and has no negative influence on economic activity. It also limits the feasibility of holding land for speculative purposes, and is an effective tool for reducing the growth of chaotic urban dispersion (Jazeera newspaper, 2014). Winston Churchill made a speech in 1909, about land monopoly and the negative impact on the economy and society.

> Land monopoly is not the only monopoly, but it is by far the greatest of monopolies -- it is a perpetual monopoly, and it is the mother of all other forms of monopoly. Unearned increments in land are not the only form of unearned and undeserved profit, but they are the principal form of unearned increment, and they are derived from processes which are not merely not beneficial, but positively detrimental to the general public (Winston Churchill, 1909, cited in Land Value Tax, para 2, 2015).

The pressure on the government regarding the housing problem makes a land tax in Saudi inevitable in the future, even if it is postponed. Although many Saudi families aspire to owning a contemporary detached house, these homes are simply not affordable; the second choice is duplexes, which are situated at the end of many blocks of apartments. The majority of families also wish to own these contemporary housing units (detached houses) without government subsidies (Bahammam, 2001). Therefore, in Saudi, there is no need for the government to

provide affordable housing, but it does need to organise and control the market to assist the citizens and the private sector. Individual home development makes up about 90% of all development in Saudi (Alriyadh newspaper, 2008) This may be positive with regard to consumers' preferences, but the problem is that most development is built by inexperienced workers, is of low quality and lacks maintenance, which makes the average age for a building in Saudi less than 40 years (Ministry of Housing, 2013).

In Saudi, there are many architectural offices around the cities, which makes it easy and cheap to design a home. However, there is a problem with similarity of the design on different sites, and lack of consideration of consumers' preferences and needs, which is clear in the frequent changes in the design and construction of homes after purchase. Conditions in the cities cause many changes in the consumers' preferences, which could be different every year (Bahammam, 2001). With the housing crisis and the variety of causes of this problem, finding a solution is important, and it must consider consumer preference. Consumer preference is a significant factor that affects the number of homes from which the consumer can choose, as well as affecting their ability to find a quick solution to the critical issue of finding the optimal house. Consumer preference factors are classified into three main categories. First, the location preferences, which are driven by the choice of city or neighbourhood. Second, building preferences design, which comprises the quality of construction, and the materials and finishing quality. Third, funding preferences: difficulty in determining the optimal source of funding delays the consumers' ownership of a home.

2.6 Housing Stakeholders in Saudi Arabia

In the decades following World War 2, city planning was widely seen as a tool that could help produce political stability, economic welfare and social harmony (Pascal, 2011). Saudi cities have gone through an expressive metamorphosis over the last four decades. Urban expansion has spread in many directions in the shape of formal and informal developments, usually

referred to as unplanned settlements (Waleed, 2012). The Americans have developed urban planning in the big cities in Saudi (Pascal, 2011). Policies have favoured residential, low-density development. This development stimulated the expansion of land use in different directions far from the city centre. The horizontal development in the cities made use car important, because of the increased transverse expansion of cities (Aljouf 2013).

In Saudi Arabia, there are seven main state bodies which take the lead on housing sector policy: The Ministry of Public Works and Housing was responsible for implementing and maintaining public housing until it was abolished in 2003. The responsibility for developing housing strategies and plans was transferred to the Ministry of Economy and Planning, and social housing was assigned to the Ministry of Social Affairs in 2003, which is currently still in the process of restructuring. Thus, this responsibility is at the highest administrative level. In 2011, the Saudi government established a Ministry of Housing to find solutions to the housing problem, with 250 billion SR (£40 billion) to build 500,000 units (Zainab Fattah, 2013). According to the Agent of the Saudi Ministry of Housing Studies and Research, there are currently more than 2.6 million families registered with the Ministry of Housing (Alarabiya.net, 2013). The Ministry started working as designer, contractor and supervisor. However, with 47 projects taking place in 13 regions and without any experienced staff leading them. After timetable delays, some of the projects dissolved but after a few months the work was stopped because of the poor quality of construction (Ministry of Housing, 2013). In April 2013, the Ministry of Housing decided to stop developing the projects and concentrate on the infrastructure instead, and then grant land to the citizens along with loans of SR500,000 (£85,000) for everyone to develop their own home individually. The Ministry of Housing started to look for land on which to build housing projects but then stopped, because most of the land in the cities or near to the cities was held by influential people, which meant there was

no more land available (Fattah, 2013). After discussions with the government, the Ministry of Housing did receive some land, but less than what they required.

The Ministry of Finance is responsible for the Real Estate Development Fund (REDF), which provides grants for housing loan applicants. It is also responsible for the Saudi Monetary Authority, which supervises financial institutions and banks.

Real Estate Development Fund (REDF)

In the last 40 years, the government has given free land to citizens and non-interest loans from the REDF; the land grant programme gave out 1.5 million plots of land (Akhbaar24 argaam, 2013). However, the REDF loan is slow and it takes about 20 years after applying to get it. Nevertheless, the Real Estate Development Fund financing option has been the most popular among members of the low-income segment because it currently dominates the home financing market; also, most of the consumers are not expected to finance their home purchase or construction through bank loans. Moreover, the mortgage markets are not well developed because of Islamic law, particularly for the lower- and middle-income segments (Sanders, 2005). In 2011, the REDF accounted for about 81% of total home financing (Figure 2.3) (Bank Saudi Fransi, 2011).

The real estate loans in Saudi originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Bank Saudi Fransi, (2011). Monetary Watch. Available at: http://www.alfransi.com.sa/en/section/about-us/economic-reports.

Figure 2-3 Real estate loans in Saudi (Bank Saudi Fransi, 2011)

Since it began in the 1970s, the land grant programme (giving free land from government to citizen) has contributed to the success of housing provision in the Kingdom. Now the land

grants are mostly in remote locations far away from city centres, and many people who are not financially able to build a home receive land, which has led to only a small percentage of land grants being used directly by their beneficiaries to build their own homes (Aawsat, 2013). It has become a challenging task for the government as well the private real estate sector in the Kingdom to provide affordable housing to lower- and medium-income families in urban areas, mainly due to high demand, escalating prices and non-preference for the (vertical expansion) apartments provided by developers (Sadi, 2009). The Ministry of Housing in Saudi Arabia has, since its emergence in 2011, sought to develop a strategy for housing, for example, by the policy mentioned earlier of stopping project development and concentrating on the infrastructure instead, granting land for citizens along with loans to build housing. However, this strategy has not been adopted by the government. Developing a strategy before starting housing projects is important, as the housing problem affects society politically, economically and socially. On the other hand, the Ministry should consider the need to participate with techniques and information provided from other government sectors and work with the private sector (Pryke et al., 2006). There should be a full inventory of those who need housing, and plans should be made according to needy areas (Sanchez, 2013).

The leading cause of the housing affordability problem in Saudi Arabia is that the mortgage markets are not well developed because of Shariah law, particularly for the lower- and middle-income segments (Sanders, 2005). With the price trend rising quickly for land and housing, borrowing money to buy land or a house is a high-risk strategy; such a phenomenon has implications for the desirability of home-ownership and household tenure decisions. Risk is an important consideration in tenure choice because it can adversely affect the household's situation (Mok, 2002).

The Ministry of Municipal and Rural Affairs has accountability for a wide range of responsibilities, and delivers direct and indirect services to the housing sector – infrastructure,

urban planning, land distribution and services to residential areas. As noted earlier, land grants are mostly in remote locations far away from city centres, and many people who are not financially able to build a home have received land, which has led to only a small percentage of land grants being used directly by their beneficiaries to build their own homes. In view of the problems, in April 2013 the King stopped the Ministry of Municipal and Rural Affairs distributing municipal grants, and gave the lands to the Ministry of Housing (Aawsat, 2013). Landowners who wish to subdivide their land have to apply to the concerned municipality for approval. Municipalities are entrusted to grant approval if the subdivision plan meets technical requirements, and conforms to city plans. Owners are requested to allocate up to 33% of the subdivided area to municipal services, which can include roads, open spaces and car parking (Waleed, 2012).

The other state bodies are involved as follows: the Ministry of Justice is a secondary actor due to its responsibility for the official land and property ownership registry. The Ministry of Social Affairs, through a regulatory structure for charitable organisations, is growing in importance in provision of housing supply, helping low-income groups in the society. The Ministry of Economy and Planning sets the key ethics for economic development strategies and, consequently, impacts on housing approaches. The Ministry of Water and Electricity delivers water and sewage services to the housing.

2.7 Process of Procuring Housing in Saudi Arabia

As any real estate market, the Saudi market depends on supply and demand; therefore, identifying consumer behaviour and buying decisions could lead to better understanding of the situation (Quester et al., 2011). As shown in Figure 2.4, when evaluating the home-buying alternatives, the Saudi consumer starts with two options: the first is procuring a house from a developer, which starts with looking at options according to his preferences, whether company or individual development. Furthermore, homebuyers look for funding, where it is possible to

have help from the government, but it take years for an application to be approved. However, a 30% deposit is required when taking out a bank loan (mof, 2015), which is a regulation of the Ministry of Finance, whilst the rest will come from the consumer's monthly salary. The last option, which is the most preferred by the Saudis, is cash, then the home can be listed under the owner's name through the Ministry of Justice.

The second option is personal development, which is highly favoured in Saudi (Alriyadh Newspaper, 2008). One of the main reasons for this is the lack of another way of delivering the homebuyers' preferences, so they decide to develop their home by themselves, even when it takes more than a year from the point of choosing the land to the point of moving into the home. This option starts by screening for available land in the preferred neighbourhood, which could be free land from the government, but this takes a prolonged period of time, for example, to meet the location preferences or start looking for funding and then transfer the ownership of the land through the Ministry of Justice. Furthermore, when starting the design stage, the homebuyer needs to apply all the Ministry of Municipal and Rural Affairs regulations in the design and construction. The construction stage is the final stage, and this is where funding is required, and the choices are government, banks or cash. After building the home, the owner can then move to the property and register with the Ministry of Water and Electricity.

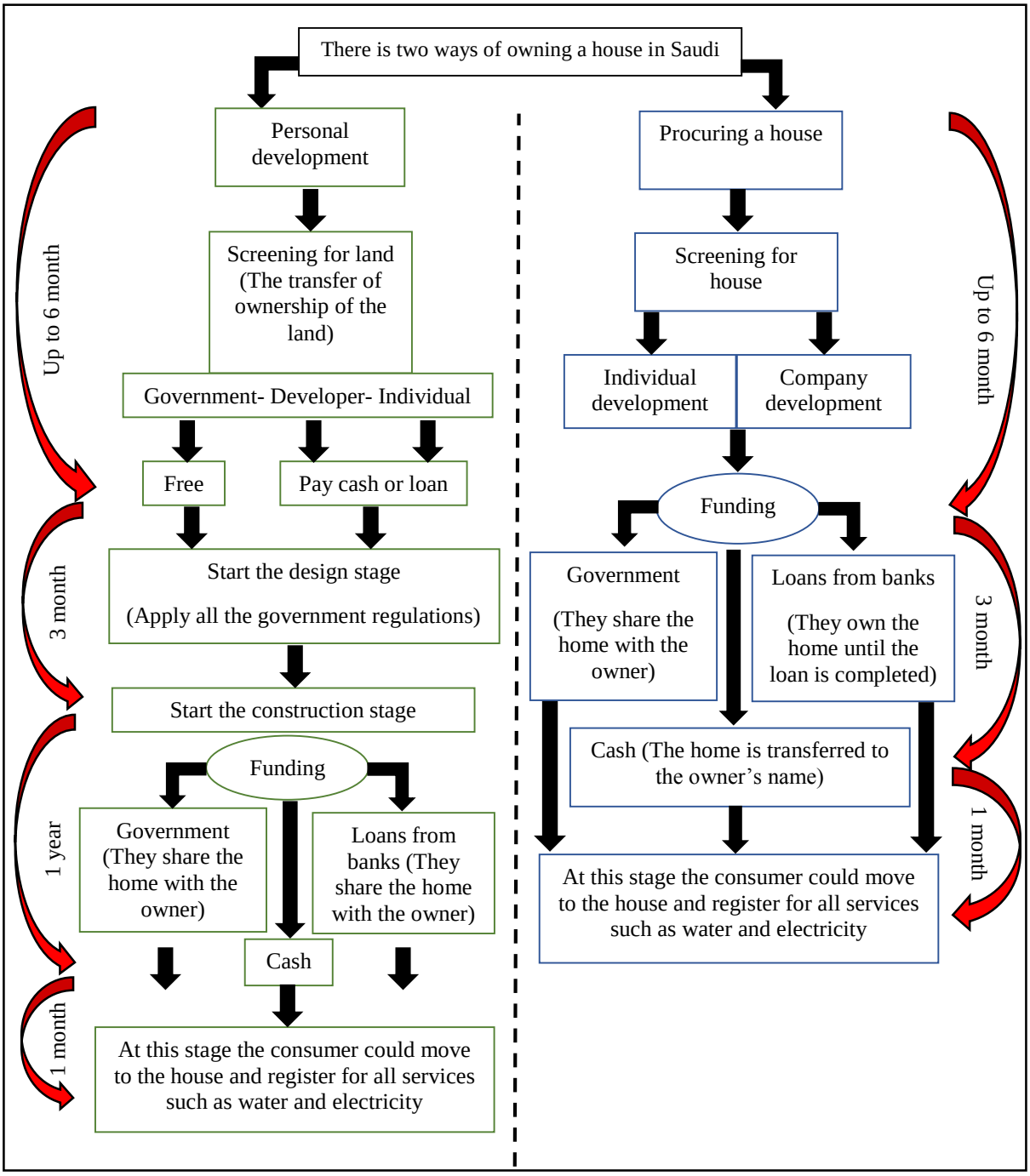

Figure 2-4 Process of owning Housing in Saudi Arabia (self-study)

2.8 Summary of the Chapter

Saudi Arabia is one of the biggest countries in the world, and its citizens are concerned about the problem of owning a home. According to census figures, the total population in the Kingdom rose from 7.01 million in 1974 to 29 million in 2013, and currently about 30% of Saudis own their living premises, while globally the average rate of home ownership is 70%. However, about 67% of Saudi citizens are looking to buy a house, 37% of whom are living in rented accommodation and 30% of whom are living in 'inappropriate' conditions. As a UN rule, paying for a house should not take more than 30% of a person's monthly salary, but in Saudi, it takes 40% to 50%, since many Saudis work in public administration jobs – education, health and public utilities – under the umbrella of the public sector, and earn less than SR8,000 a month (about £1,300). Moreover, the average cost of a contemporary detached house in the city of Riyadh has reached approximately SR1,230,000 (£220,000). In the Saudi Arabian government, there are seven main state stakeholders that take the lead on housing sector policy, due to the increase in the housing problem. There are two ways for Saudi consumers to own their own home, by procuring a home from developers, or through individual development, which is common in Saudi because of the developers' weakness in delivering the consumers' home preferences.

Having discussed the housing problem and the real estate market in Saudi Arabia, and the ways in which the government is involved in responding to the challenges therein, in this chapter, the next chapter looks at consumer preferences in general and in the housing market in particular.

Chapter 3: Consumer Preferences

Chapter 3: Consumer Preferences

3.1 Consumer Preferences

Consumer participation in understanding and choosing their preferences is not a common subject of study, regardless of the important need for it to be studied as it may drive people's desire to buy and influence the success, continuation and quality of any product (Hemsley, 2010). Studies about consumer preferences mention that humans do not live alone; they share their lives with others when they build their priorities, faith, and choices (Manski, 2000). Preference and choice are affected by a consumer's needs and the desires of others, which leads to associated choices (Yang, 2003). Moreover, because people engage with their families, co-workers, neighbours, and friends, their preferences can be similar due to these social relations. However, quantitative models of consumer purchase approach often do not focus on the fact that preferences and options are linked. Economic models of choice usually expect that a consumer's latent utility is a function of brand and attribute preferences, not the preferences of others (Yang, 2003).

Researchers identify three social resources that affect the buyer’s method of making a choice: initialisation, identification, and compliance. Initialisation occurs when people are willing to learn from others because they believe it could help them make a better decision that optimises their own returns. Identification occurs when people adopt from others because the behaviour is associated with a satisfying, self-defining relationship to the other (Yang, 2003). Compliance occurs when the individual conforms to the expectations of another in order to receive a reward or avoid punishment mediated by that other. This means people are hoping to learn from each other, because they think it helps them to get the best decision (Yang, 2003). Social psychology assumes that a human may have two different influences towards an object at the same time – one that is explicit and corresponds with deliberative behaviour and one that is implicit and

corresponds with spontaneous behaviour (Friese et al., 2006). Therefore, expansion of an effective new product or improvement to an existing product needs to measure consumer preferences in order to minimise development costs and give the best result (Hauser et al., 2014).

The economy is an important factor in consumers' preferences, as economic development reinforces customer satisfaction as it enables consumers to get the best products and services. People tend to meet their low-level needs before they advance to the resultant high-level needs (Björn et al., 2014). Sometimes, suppliers need to adopt many strategies in order to cover the market, not just one. When there are several marketing strategies, managers need to understand the criteria to effectively differentiate these strategies in order to deal with consumers' preferences (Björn et al., 2014). In an atmosphere of lower economic development and income, consumers would thus spread their expenses across many lower-level needs rather than pooling them to satisfy a single higher-level need at the cost of ignoring the lower-level ones. Hence, they would prioritise high perceived value (quality over price) and settle for low levels of higher-order wants. On the other hand, under an atmosphere of higher economic development and income, consumers consider the consequences of lower-level wants to be self-evident and focus more on the consequences of higher-level wants. This means consumers' preferences are highly affected by the economic situation (Sirgy, 1986).

In cultures with higher uncertainty avoidance, consumers tend to make choices that avoid risk; consumers can reduce the risk of failure and disappointment by choosing high-quality products and services. Consumers with higher uncertainty avoidance are stricter in evaluating products and services because they react more harshly to sub-optimal quality (Hofstede and Hofstede, 2005; Sharma, 2010). People normally have different preferences – they need to deliver their choice across a range of preferences. People who are able to make a choice, even if it is trivial and illusory, are happier and healthier than people who do not get a chance to make a choice

(see, for example, Cordova and Lepper, 1996; Langer and Rodin, 1976; Zuckerman, et al., 1978). For example, middle-class people in the USA need to have an opinion on every tiny thing in their lives (Savani et al., 2008). People prefer to have control and reflect their preferences; it is human nature psychologically (ibid). However, in Japan, people's attitudes to preferences are the reverse of people's in the USA: they usually do not care about themselves; they are more concerned about other people's opinions of their preferences. They also justify their preferences because they are aware that their attitude is being scrutinised by others (Kitayama et al., 2004). Preferences are sometimes not similar in all cultural contexts, even if, for example, the Indian and USA citizen contexts provide a similar availability of some preferences (Savani et al., 2008).

The retail market is also important in consumer preferences, as a quickly changing retail environment can affect the consumers' attitudes towards the retailer; the problem is how to deal with the competition relating to consumer shopping behaviour (Stores, 2000). To make better-informed decisions on this issue, retailers need to know more about the timing of shopping trips, store choice, and switching behaviour of consumers, together with those factors that influence this relationship, in order to develop appropriate strategies, as knowing the details of consumers' lives enables retailers to understand their attitudes (Stores, 2000). The economists' approach to advertising in the retail market is that it is an attempt to change the consumer's tastes. Since when a modern economy's consumption technology becomes the main part of the retail market this is clearly very complex, consumers require a great deal of information concerning that technology, which is provided by advertising (Kelvin, 1996).

In addition, politics has a big effect on consumer preferences, where the citizens' preferences should be taken more into consideration in the formulation of public policy, especially with respect to public goods, by estimating the amount of money with which people could be willing to part in order to satisfy their preference. Furthermore, citizen preferences should form a part

of social regulation (Lewinsohn et al., 1998). Some scholars argue that people are confused between different preferences in their ‘consumer’ and ‘citizen’ roles. A consumerist attitude reflects people’s egoistic regard for their own interests, whereas citizen behaviour reflects their values and beliefs about society's interests rather than their own self-interest (Lewinsohn et al., 1998). However, people cannot adequately consider the effects of social policies on their lives. Therefore, consumer preferences, although they express more self-centred wants and interests, are as true and authentic a reflection of people's needs and values as citizen preferences (Lewinsohn et al., 1998). With regard to election choice, for example, some explanations of it are based on people's assumption that the preferences they express as citizens will have no practical effect; that is, not be what the person wants. The hopelessness explanation asserts that this discrepancy is caused by people's perception that there is a greater chance of realising collective goals through political processes. It assumes that citizen preferences accord substantially more weight to the welfare of others and to the good of the community and are not self-centred (Lewinsohn et al., 1998).

Finally, migration to cities also influences consumer preferences, as mass migration to cities has continually transformed societies and the patterns of consumption therein (Üstüner et al., 2007). According to a UN report in 2013, 1 billion people – about 17% of the total world population – are former peasants who now live in slums on the urban periphery. The migration from village to city is an exemplary case of what theorists call globalisation, and it seems as if the change in lifestyle could change consumer attitude (Üstüner et al., 2007). For example, there have been three social changes in Turkish villager culture: firstly, less contact from the second and third generations who are living in a city with their original village. Secondly, the appearance of Western values and middle-class people drawing upon Western consumer culture to reflect their modernism. Thirdly, around the big cities squatter communities have mushroomed, which is a result of this migration (Üstüner et al., 2007).

3.2 Consumer Preferences for Housing in General

Research for housing starts with different choices, and the screening stage, at family level, evaluates all options based on their lifestyle, preferences, and utilities and narrows the alternatives down to a few choices with a small number of options and alternatives. Then the final location is chosen from among these options (Rashidi et al., 2012). International conferences have agreed on some basic conditions for adequate housing, suggesting an encompassing set of seven variables (Figure 3.1): accessibility, physical environment, social factors, services, presence of water in the vicinity, municipality, and – to add an element of supply-side restrictions – supply-side friction (Kauko, 2006).

The basic conditions for adequate housing originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Kauko, T. (2006). Expressions of Housing Consumer Preferences: Proposition for a Research Agenda. Housing, Theory and Society, volume 23, no. 2, pp. 92–108.

Figure 3-1 Basic conditions for adequate housing (Kauko, 2006)

One value of family housing is connected to multi-variables of demographics, economics and psychographics that could affect the real estate market. Demand in such a market is a function of demographic and economic variables, for example, the price of the housing unit, the number of household members, the level of household income, the mortgage interest rate (Nelson et al., 1988). Housing needs are subject to policy issues and personal perceptions where needs are seen as a lack of something or as a need for something (King, 1996). The idea of the need is often relative, and that is true in relation to housing. Rather than an absolute necessity, need is more the perception of wanting housing of a particular standard and suitability (Whitehead et al., 1992). Even when households have suitable dwellings, the perceived need for improving circumstances does not disappear. Therefore, housing need, regardless of the current situation and even if it does not lack anything, should be seen as a personal need (King, 1998).

The family home is a function of different variables, even demographic, economic or psychographic ones (Nelson et al., 1988). In Saudi society, the majority of members are young people, which is the reason for the decreasing homeownership numbers, which is linked to the different house preferences of different groups (Reed, 2007): married couples prefer home ownership more than single people (Teck-Hong, 2012). Adequate housing has a value for individuals, families, communities, and society; it is the largest investment that a family will make (Opoku, 2010). However, the largest portion of a household's wealth is in the form of home equity (Teck-Hong, 2012). Consumers look to homes to provide shelter or as an investment, as financial saving plans are difficult for new families, so consumers normally try to find the correct type of home to buy, according to specific factors (Nelson et al., 1988). The family life cycle is an important factor for homebuyers, such as the family's formation, marriage and children (Teck-Hong, 2012), and it is strongly linked to family size and marital status. An increase in the number of children previously in Saudi households can result in a high homeownership rate, while in Australia a high number of children means that homeownership is less likely (Reed, 2007).

Preferences and options in a society are constant dynamic operations, based upon the behavioural dynamism of people. Housing preferences and choices operate within the framework of preferences and options for housing attributes (Bako et al., 2009). These preferences are measurable criteria; however, it is difficult to define all the home functions that are required in the family house. Subjective variables, such as tastes and preferences, as well as expectations concerning price, income and interest rates, also affect business (Nelson et al., 1988). Supply is also a factor of goal variables – the prices, technology, and productivity. Moreover, subjective factors influence expectations about such things as prices, absorption rates, vacancy levels, and production costs (Nelson et al., 1988). Although people in general prefer to have the opportunity to select from a number of options, they will be less interested

if such options also mean an increased price (Hofman et al., 2006). The most common structural characteristics that can affect home-buying preferences are lot size, number of bedrooms and bathrooms, and presence of a garden (Teck-Hong 2012). Preferences will differ with consumer features such as the household's sociological characteristics (age, household size and composition), resources (income, wealth, information and experience), tastes and priorities; subsequently, even if the set of constraints is constant, different preferences will affect consumption of housing containing various features. Incorporating information about consumer attitudes, preferences and perceptions into economic models of the housing market is critical to any reduction of the large margin of unexplained variance in housing consumption behaviour for any country (Giblera et al., 2010).

Knowledge of the housing market reveals four primary categories of valuation (the values that must be investigated) (Nelson et al., 1988). These categories are:

- Physical features of the house could provide a significant improvement in the owner's lifestyle.
- Accessibility and locational characteristics of the property.
- Environmental characteristics of the geographic area surrounding the property (the neighbourhood).
- Public service features of the local jurisdiction, for example, quality of schools, safety. Moreover, public service improvements such as water provision, sewage disposal, condition of roads, etc., are also important.

Housing characteristics, neighbourhood quality, and location in relation to services are important in housing markets: how housing characteristics (space and quality of housing), neighbourhood characteristics, environmental quality, and location affect choice and house prices; and how income, family size, and changes in life style affect the demand for this housing (Al-Otaibi, 2004). Each home is comprised of a unique bundle of attributes from among which

the buyer must choose. The housing attributes may be collected into three major categories: structure and lot size, neighbourhood environment and quality, and location or accessibility. In addition, to improve consumers' patronage of housing, the following variables should become key to management considerations and receive adequate attention by designers: space of housing unit, type of unit, cost of dwelling, and quality of interior design; also, analysis of household activities and characteristics: planners and policymakers should consider the social structure of the households and their cultural values (Ayman, 2003).

Affordability and financing also play a role in consumer preferences. For example, when consumers consider how to finance their home purchase, their age does not appear to influence their choice of a mortgage contract. Younger borrowers tend to use short-term mortgages; the only borrower characteristics that affect the choice of interest rate are age and the number of children in the household: the more children and the higher the age, the less likely it is that the household will choose a short-term mortgage. The findings might show that individuals with fewer resources prefer to look at their interest payments (Hullgren, 2012). However, some research has found that education is indeed an important factor in understanding consumers' choice of mortgage loan and the broad terms connected to it (Bucks and Pence, 2008). Households that will experience the greatest changes if the adjustable interest rates increase are often also those with less income and less education (Bucks and Pence, 2008); these same households underestimate – or know very little about – how much the interest rate may actually change (Bucks and Pence, 2008). In addition, research has revealed that households with a lower level of education (Campbell, 2006) perform mortgage refinancing less effectively. Higher income makes the choice of a loan more probable; married couples and people with housing tenures that are expected to be short have the greatest probability of taking out a loan, which could be interpreted as co-borrowers/married couples have better incomes and a better financial safety net should something unforeseen happen (Hullgren, 2012).

However, sometimes there are changes in consumers' behaviour, such as due to the loss of a spouse, which may also modify the household's preferences, perhaps because the loss of a spouse means that the survivor faces the absence of a potential caregiver. In addition, it could be a motive for the widow to move close to her children; on the other hand, she could move to somewhere where she has the chance to live independently in her old age (Bonnet, et al., 2010). Size and maintenance may be related to the desire for lower expenses; for example, rather than 'bigger is better', many seniors in the UK want a smaller home (Spectic, Kozak, and Cohen. 2005). In addition, low-maintenance homes and gardens are a recurring preferred attribute in many countries. However, for high-income California community residents over the age of 65, a landscaped area and an exercise area were important features in a retirement home (ibid). For such people, the internal design is important, especially with regard to providing an alternative to stairs. However, many Americans and Australians still want a garage in which to park their cars. Neighbourhood access to services is also important for seniors in the US and Canada in terms of proximity to public transportation, a grocery store, a pharmacy, medical facilities, a post office, beauty/barber shop, restaurants and a bank (Giblera et al., 2010).

Looking at existing home preferences models, it clear they are limited, they do not take into account multiple stakeholder views, and that Saudi needs a different approach by involving such views. These models have been developed without depth; they do not look into consumers' choices and the variables, which is essential for identifying the home needs in Saudi. Thus, all the people who have a factual interest in the total results of a project should be involved – and they are known as the 'stakeholders'. As such, they show an interest in the proceedings of the project and have a hand in the total progress of the entire scheme. In the construction part of the process, they include such people as the financier, the promoter, project owner, supervisor, engineers, and technical specialist, planning supervisor, operator, constructor and the neighbours (Stevens 2002). Needs and concerns of all the stakeholders

should be reflected in the objectives of the project. However, in Saudi, the housing design does not fit consumers' preferences and many changes happen that are driven by the homebuyer (Bahammam, 2001).

Participation in design is the right of all citizens, and many scholars support the concept of consumer participation in their projects (Ammar, 2013), as it gives them confidence in their ability to assist in their projects, and helps them to make the right decisions (Coit, 1984). Non-involvement of prospective house buyers in the preparation of design guidance represents a missed opportunity to include local knowledge and local values in the formulation process, and to provide a democratic legitimacy to the developing design guidelines (Scott, 2013). The user's participation could take time and money but it gives a greater probability that customers will be satisfied with the product (Ammar, 2013).

Sanoff (1988) provides the following facts about the design process, which support involving the consumers' preferences in the design stage, and where there is no one solution for the design problem. Normally, every problem has a number of solutions; knowing the users' preferences offers the potential to resolve any design issues, and strengthens the design. User participation also ensures their satisfaction with the product (Ammar, 2013). Moreover, it educates the consumers on how to participate in a project and share the responsibilities, which will reduce the need for modification or moving in the future (Ammar, 2013), as collecting their views at the beginning and taking them into account could reduce the issues in a housing project (Folaranmi, 2012).

A study about Nigeria (Aliu et al., 2014), represented in Figure 3.2 shows how the consumers make their decision to buy a home.

The model showing how consumers make the decision to buy a home originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: I. Rotimi Aliu a, A.(2014). Intra-city polarization, residential type and attribute importance: A discrete choice study of Lagos. http://dx.doi.org/10.1016/j.habitatint.2013.10.002

Figure 3-2 Model showing how consumers make the decision to buy a home (Aliu et al., 2014)

Firstly, the home seeker looks at the social, economic and demographic attributes. Then it comes to what is required from the home, which includes internal needs relating to family, income and lifestyle, and externals needs such as neighbourhood, location and dwelling. After that, the decision that needs to be made is whether the home is going to be rented or bought, so that research can be started on the home's location. First, the location of the home and the residency aspiration are important for making the choice and then the site facilities, which are

split into two groups: the quality of the neighbourhood (location, external features, prestige), and the structural quality (such as cost, facilities, and interior). After that, the preferences need to be matched with the aspirations of the home seeker to make the decision. The main goal for the home seeker is to choose the home and the location, but not all of the preferences are important if he/she does not have the ability to pay for the home (Aliu et al., 2014).

Another model of home satisfaction, shown in Figure 3.3 from Zhang (1987) in China shows five main categories.

The model of housing satisfaction in China originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Jidong Zhang, (1987). Housing Policy and Housing Satisfaction in the People's Republic of China: A Behavioural Approach Applied in the City of Xian. PhD thesis. Wilfrid Laurier University.

Figure 3-3 Model of housing satisfaction in China (Zhang, 1987)

Neighbourhood (public space, public service, access and neighbours location), type of housing (size of room, interior, housing and conditions), socio-economic characteristics (family size, family income, household age and family status) and, finally, the psychological characteristics (occupation, education and lifestyle). Whilst the first two categories link to the housing environment system, the last two link to the needs, expectations and aspirations, and the location category links to both. All of that goes for the housing stress and satisfaction than the attitudes to move or stay and, finally, the mobility behaviour, which turns back to the needs, expectations and aspirations through housing management policy, which is also linked to the housing supply. The entire elements link to the home satisfaction, which is the main factor in the housing system.

3.3 Consumer Preferences for Housing in Saudi Arabia

Users' preferences is a significant topic and a key to solving the housing problem. The solutions that are not consistent with consumers' ambitions and needs would influence the beneficiaries in different ways, socially, culturally and economically (Sirgy, 2005). Users' preferences may be different from one country to another, from one city to another and from one person to another, where there are differences in the culture and society, and different requirements from one place to another. However, the housing market in Saudi is suffering from a lack of studies identifying consumers' home preferences. Knowing these preferences requires framing of the problem to identify the points and requirements favoured by consumers, in order to solve the housing problem more quickly, according to the needs and desires of the beneficiaries and within the laws and regulations of the government concerning the design and build. In Saudi Arabia, ownership rights are partly addressed by the building laws (Sidawi, 2008), for example, with regard to the footprint of the property, where there is a rule for the distance between neighbours, where the property is normally designed in relation to the local lifestyle and

traditions (Sidawi, 2008). The rights relating to control, management, ownership, and use, which include right of use and benefit and transfer of the right of benefit to another party (Al-Kurdi, 2002), are also included, all of which give the individual identity for consumer and property.

Identity has social and physical connotations. However, it changes with time, as every community faces a challenge to preserve its identity against the rapid changes in the economy and technology which lead to modifications in preferences (Al-Naim, 2008). Homebuyers are influenced by lifestyle, traditions and culture, which then affect how the developers and designer address the provision of their preferences. Lifestyle affects the home through organisation of internal spaces, distances between places and location of spaces (Sidawi, 2008). Saudi consumers' housing preferences range from intrinsic housing attributes such as cost and size through extrinsic attributes such as exterior design and exterior space to neighbourhood and other locational factors but, from a marketing view, it is about what the Saudi families care about in their homes and what their needs are (Opoku et al., 2010). The Saudi culture is quite different from the rest of the world with regard to housing preference, as normally the home design is in three parts (men's section, women's section and family section) and that preference comes in all different kinds of residential buildings – flat, villa or palace (Bahammam, 2001). Many years ago, owning a villa was a social symbol reflecting the family's status. However, with time many people moved to villas, which then lost their role as a social symbol. The villa is the current prevailing trend in Saudi Arabia. However, the home's external form is not compatible with socio-cultural needs, where consumers use it to reflect their position in society, in the type of building materials, where size is used as a social symbol, even if they make a contradiction in the external design (Al-Naim, 2008).

It is important to understand the consumers' lifestyle in order to understand the homebuyer culture; in Saudi, there is a need for more space and form in the physical dimension, so that the

home is comfortable for the family. In addition, the psychological dimension is also important, where consumers' require internal and external spaces that give them a feeling of relaxation and safety. However, for the social dimension, where privacy is the main element, consumers need individual space, family space and visitor space. Finally, in the spiritual dimension consumers are looking for a space for spiritual practice, worship and adoration (Sidawi, 2008). Some of the cultural elements that affect homebuyers include separate bedrooms for boys and girls, and the distance between the male guests' outdoor space and the outdoor family entertainment space; these high-value elements provide a high level of visual and aural privacy, which influences the homebuyers' choice (Al-Kurdi, 2002). In Saudi, visual and aural privacy and the need for an outdoor space for children's activities or entertainment are part of the local lifestyle (Al-Kurdi, 2002). However, due to the hot weather in Saudi, every home should have a yard with a fence or a wall; the yard should make up at least 40% of the land with 60% for the building; because of that, the cities council's condition is that the minimum size of a home's land should be 200 sqm, and the building should have two and a half floors (Bahammam, 2001). Space is a leading aspect in the home-buying decision-making process: most households make an effort at all times to increase the size of their housing lot, as it symbolises more luxury for the inhabitants (Teck-Hong, 2012). Therefore, the number of rooms or bathrooms in a house is an important feature to be considered by households in making home-ownership decisions, particularly in Eastern countries. In Saudi Arabia, private living space, such as the number and size of bedrooms and the number of bathrooms, is considered to be the key housing attribute because it can be directly related to the issue of privacy (Opoku et al., 2010). The neighbourhood's location is also one of the main preferences for citizens in Saudi; the design of the district, the kind of people who live in the area and the size of the homes are factors in this preference. Also important is how far away the prospective home is from commercial areas, mosques and schools. After the location of the neighbourhood, there are preferences

regarding the plot of land such as the length, number of streets around the house, and if it is in a stream torrent (Bahammam, 2001).

Spaces in the home are needed for multiple uses and have different levels of preference: legibility (accommodate multiple functions), permeability (achieve the functional requirement, environmental and aesthetic), richness (elements, components and characteristics), visual appropriateness (compatible with aspirations of the user) and personalisation (exclusivity) (Bahammam et al., 2008). However, the design for urban spaces needs to identify the surrounding emptiness, such as choosing void spaces and dimensions, identifying entrances, the dynamics of the vacuum and the possibility of dividing it, easy access to the spaces, appeal of access, and concern for the environment (Bahammam et al., 2008).

Finally, in the construction of all homes, there are initial costs and running costs. Some of these are climate preferences, including cooling and heating, ventilation, insulation and the exploitation of solar energy (Bahammam et al., 2008). Due to the developers' and government's weakness in understanding and applying the homebuyers' preferences, homeowners have to apply certain changes to their property over time and possible renovation or alterations in Saudi homes happen for different reasons, for example, because the main design is not suitable or because the user changes, or their lifestyle changes, for example, from 'normal' to elderly or disabled (Sidawi, 2008). As a result of the consumers' lifestyle in Saudi, and due to all the government regulation in building and design, Saudi consumers add a social regulation in their lives by responding to the implicit, socio-cultural constraints (Al-Naim, 2008), which results in a problem in the housing market.

3.4 Consumer Preference Variables

The home should normally be designed to provide for needs linked to daily living: sleeping (as in bedrooms and other sleeping amenities); eating (as in kitchen facilities, access to clean water,

and eating and dining areas); excreting bodily wastes and grooming (as in bathroom facilities); living (as in living area and other amenities); and maintaining the home (as in utility area and related amenities) (Sirgy, 2005). Housing preferences are affected by functionality of the design, which is linked to the home's features (like quality of floor plan, as in quality of areas related to sleeping, living, eating, and maintenance), and financial costs related to home purchase and maintenance. Moreover, the more main features that a homebuyer finds in a particular home, the more likely it is that he/she will feel motivated to buy that home (Sirgy, 2005). The residential occupant image is defined as the stereotypical image of the typical dweller of a home, a housing complex, or neighbourhood (Sirgy, 2005). Some aspects of housing choice may be interpreted in the light of social approval, for example, the quality of schools in a neighbourhood is an important factor in housing choice. However, the ranking of the school's quality could be socially influenced by the people in the neighbourhood (Sirgy, 2005), although their social environment could affect the school preferences directly. Parents are likely to send their children to similar schools that their friends choose. The need for social agreement could have more effect on housing preferences by determining the significant variables that provide spatial comfort in the neighbourhood. Social roles affect the attitude in any social community. Such norms may set which neighbourhood luxuries are sought. Desired amenities are therefore likely to impact on housing preferences positively whereas undesirable amenities influence housing choice negatively (Sirgy, 2005).

The basis for most housing demand studies is the individual consumer's utility function, whereby households want to maximise their utility subject to internal and external constraints. The consumer's housing choice is affected by the objective and subjective housing attributes as well as the consumer's own characteristics (Gibler, 2010). Each home comprises a unique bundle of attributes from among which the buyer must choose. The housing attributes may be

aggregated into major categories (Figure 3.4): structure and lot, neighbourhood environment and quality, and location or accessibility (Gibler, 2010).

The housing attributes from among which the buyer must choose originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Gibler, K.M. and Taltavull, P. (2010). Using preferences for international retiree housing market segmentation. Journal of Property Research volume 27, no. 3, pp. 221–237.

Figure 3-4 The housing attributes from among which the buyer must choose (Gibler, 2010)

Demand models attempt to translate product attributes from these categories into preferences. Preferences will differ with consumer characteristics such as the household's sociological attributes (Figure 3.5) (age, household size and composition), resources (income, wealth, information and experience), tastes and priorities (Gibler.2010).

The household's attributes originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Gibler, K.M. and Taltavull, P. (2010). Using preferences for international retiree housing market segmentation. Journal of Property Research volume 27, no. 3, pp. 221–237.

Figure 3-5 Household's attributes (Gibler, 2010)

There are a lot of differences in what is considered the most important housing preference – the feeling of attachment to the neighbourhood, the social relations, the work on the house itself, the items that people put into the house (Kauko, 2006), the accessibility and proximity –

the longer the distance by time to work and to services, the lower the preference for that location – and the availability of public transport services, which makes the location more attractive (Kauko, 2006). With regard to neighbourhood social factors, the neighbourhood should have a high social standing, and be free from social disturbances, such as troublesome neighbours, or risk of being the target of robbery or assault. A further potentially relevant issue pertains to the social relations and sense of belonging to the community (Kauko, 2006). In addition, the services and infrastructure in the neighbourhood, which is the availability and level of hospitals and health services, schools, retail, cinemas, etc., is also important. The physical environment comprises two types of attribute:

- Soft/intangible factors: 'pleasantness', visual factors, greenery, etc. Presence of water in the vicinity is also important: this is the net effect of water as an amenity and water as a risk factor.
- The neighbourhood's social factors are important for its urban design. Thus, neighbourhood status is a substantial determinant of housing choice. The service infrastructure in the neighbourhood was found to be of moderate importance (Kauko, 2006).

The density of urban development has the potential to impact upon all of the dimensions of society. For example, higher densities may make access to services and facilities both easier and more economically viable. Higher densities may also mean that people are more likely to have greater social contact than in lower-density areas. However, in higher-density societies, people may withdraw from social contact and experience stress (Dunes, 2013). The density of development may also affect the appearance and aesthetics of a place, and hence people's sense of attachment to and pride in it, although it is far from clear whether this relationship is positive rather than negative (Dunes, 2013). Dunes (2013) also stated that people preferred houses to

be built in their area rather than flats and the type of housing people most disliked was blocks of flats of four or more storeys.

Some people think that the house design provides a better division of living and sleeping areas; whilst others think that the one-storey design is better. However, the number of storeys is not important because the function and design are the main things, even for people of different ages, gender and social class, although evaluation of the individual properties will vary among individuals because of their different perceptions of the same physical attributes (Gibler, 2014). These changes in perception provide another example of why the traditional method of dividing markets into physical property types may not be sufficient to accurately identify the groups of properties from among which a consumer is choosing. However, builders will profit if they identify the lifestyle trends and design property accordingly, and real estate sales agents will work more efficiently if they identify and show only the houses appropriate to the potential buyer's lifestyle, such as each member of the family needs a private bedroom, but the family can share a bathroom.

Within the broader society, subcultures exist. Subcultures are racial, ethnic, religious or other groups whose members are distinguishable from the general population (Gibler, 2014). Developers and builders should be aware of social class structures and preferences when designing houses and neighbourhoods, to ensure that they will appeal to the expectations and self-image of members of the targeted social class. Architectural designs must reflect what members of the group would expect in their type of neighbourhood; for example, in some cultures a fireplace acts as an index of the social value of a dwelling and the social rank of its occupants (Lawrence, 1989). Other signals include the types and arrangements of interior decorations (Laumann and House, 1970; and Pratt, 1982) and landscape design (Duncan, 1973). In addition, the family unit, rather than the individual, purchases products such as housing. Family members may be involved in real estate decision-making as gatekeepers,

influencers, deciders, buyers and users (Blackwell et al., 1995). Thus, all the family members may be involved in a real estate decision in some fashion. In such situations, identifying the proper family member to interview to obtain complete and accurate information regarding a real estate decision can be difficult. Over time, family preferences have changed to prefer a pro-urban home, which is near to city features such as special architecture, social and cultural variety, and is close to the city centre, where there is a chance for luxury and leisure; with that, cities experience the growth of urban subcultures towards market liberalisation (Kauko, 2006).

A lifestyle concept based on modern class structures from values leads to choices related to one's home and neighbourhood. For example, some householders think they are strangers in their neighbourhood, because their culture is not the same as that of their neighbours. In addition, the more individualistic and self-expressive a homebuyer's approach, the more their preferences are linked specifically to home decoration and furnishing, such as the interior design reflecting a playful attitude to identity. Traditional conservative theory states that households have a more use-oriented approach to their house, where it is more than a functional shelter – it is a home to its residents (Kauko, 2006).

There is a range of mainly housing-related variables such as cost and size, through extrinsic variables like exterior design and exterior space (Bhatti et al., 2004), to neighbourhood and locational factors such as air pollution. The choice of residential location is based on certain variables, for example, the quality of the neighbourhood and the schools and perceived neighbourhood safety. Travel duration is one of the main factors controlling residential locations in the city, and delivering homes near places of employment can affect residential location-choosing decisions for low- and middle-income workers, and for single-worker households (Wang, 2011).

On the other hand, some consumers consider functionality and spaciousness of the house itself to be more important than location (Kauko, 2006). Thus, factors other than commuting cost have much more influence on location decisions (whilst Giuliano and Small, 1993). As an example, Canadian consumers have a different view: features of the house and economic and location factors are the most important factors for them. Also in the Canadian context, products and materials promoting energy efficiency, natural light, better insulation, and non-allergic qualities affect consumers' likelihood to pay more for features that provide better indoor environmental quality (Spectic, Kozak, and Cohen. 2005). In contrast, Chinese people think that neighbourhood variables, such as features that favour one neighbourhood more than others (such as accessibility, public services, convenience, environmental quality, and exterior appearance), are paramount compared to other residence factors in choosing a house (Wang and Li, 2004). In addition, there is a stronger preference for external features as opposed to internal ones, where the preferences are location, road accessibility and public transport (Wang and Li, 2006). For example, in Turkey, the proximity to family, the cleanness and quietness of the neighbourhood and a stable social environment are people's most preferred variables (Dokmeci et al., 1996). In Jordan, interior design, outdoor space and materials used for the exterior, exterior appearance, functionality, kitchen size, type of community and neighbourhood, and proximity to community facilities are the main variables (Al-Momani, 2000). Furthermore, according to Al-Momani (2000), in Jordan the housing space, good road, good transportation, single-storey houses, efficient heating system, greenery, high-quality neighbourhood, and a quiet community are important preferences.

It is clear that the social and cultural aspects of a community have an important position and effect on housing preferences; specifically that housing preferences are determined by religion, kinship, and social relations (Jabareen, 2005). It is good for consumers to acknowledge the integration of social and psychological determinants with the functional aspects of home

housing preference and choice. For example, privacy in housing is a variable sought by people of all cultures. However, influences on housing forms change from one community to another (Chiu, 2004; Hoekstra, 2005). For example, while in England privacy relates directly to the privacy of the personal space, in Japan it relates to the family's living privacy (Ozaki, 2002). In Middle Eastern countries, social values and religion have a huge effect on housing preferences and significantly affect consumers' choice of housing variables. For example, the family relations and behaviour towards women are crucial factors for individual Arabs who are looking for homes (Jabareen, 2005). Privacy in the Middle East is of great importance as part of Islamic requirements, such as the strict separation between males and females who are non-family members (Between, 2002). Therefore, not all types of home are conducive to the kind of lifestyle that is desired by Saudi families. Only villas, enclosed with privacy walls and containing separate living quarters for males and females, each with its own separate entry/exit locations, can enable Saudi families to achieve the kind of sanctity they would like in their living environments (Tuncalp,1991).

Housing preferences and factors form the main part in house buyers' decisions, but the necessity for different housing variables differs across the country, and the social and cultural considerations highly influence the importance of housing variables and house-buying decisions (Wang, 2011). For example, the aesthetic aspects of a house is very important to the low-income segment of the Saudi population. Among the factors with relatively low importance is the lack of concern for exterior space. For example, South China residents rate internal environmental elements of the house as more important than external ones. In contrast, some European studies have found that buyers are prepared to pay more for environmental externalities like a garden and public green space (Wang, 2011).

After looking at different studies about home preferences, it is clear that there are different main factors that lead the buyer when he/she wants to buy a home, starting with the financial

factor, the house price changes, and the bank and companies mortgages. In addition, there is the location factor, which includes different variables about the location and the neighbourhood preferences, what the people prefer and need in their neighbourhood, with the factors that lead them when they want to choose their house. In addition, the external design factor, which includes many variables about the external preferences for the house, such as the size, the form, garden, parking and other aspects, influences the homebuyer when looking for a home. However, there are also internal design factors, which include a multitude of preferences such as the functionality, the number of rooms, the privacy and other different variables. Finally, there are some extra specification preferences, such as the quality of the home, the insulation and the environmentally friendly nature of the building.

3.5 Summary of the Chapter

This chapter has discussed the importance of consumer participation and knowing their preferences; these preferences may drive people's desire to buy and the success, continuation and quality of any product. Additionally, identifying and researching housing starts with a screening stage for different choices; then, at the family level, all options are evaluated based on their lifestyle and preferences, and then the final location is chosen from among these options. It is clear that the age, education and marital status of the homebuyer affects their decision when they want to buy a home. Furthermore, culture is also important, and the Saudi culture is quite different from the rest of the world with regard to housing preferences, which has resulted in the emergence of some different variables that could affect the generalisability of the study.

The home should normally be designed to provide for the needs that are linked to daily living: sleeping, eating, excreting bodily wastes and grooming, living in and maintaining the home; and the basis for most housing demand studies is the individual consumer's utility function, whereby households want to maximise their utility subject to internal and external constraints. This chapter has identified the factors and variables which influence the homebuyer, where the main factors that lead the buyer when he/she wants to buy a home start with the financial factor, then location factor, the external and internal design factor, and, finally, some extra home specification details' preferences. The chapter has identified 18 variables for the financial sector, 13 variables for the location factor, 8 variables for the exterior design factor, 11 variables for the interior design factor and 6 variables for the home specification details factor, and the study will examine the paradigms and suitable method by which to investigate these preferences in the next chapter.

Chapter 4: Research Paradigms and Methodology

Chapter 4: Research Paradigms and Methodology

4.1 Introduction

The research methodology provides the operational structure by which this study investigates consumer preferences. It outlines the data collection procedures and analysis. To this end, this research methodology entails more than the methods one intends to use when collecting data, and often includes consideration of theories and concepts that design the methods. In addition to providing a description of the research methods, this research methodology also outlines how the hypotheses and research questions should be addressed. What is more, this methodology is discussed in adequate detail so that, with regard to the consumer preferences study, every element of the methodology has been described and justified with unambiguous reasons for the choice of a particular method and materials.

4.2 Research Paradigm

The research paradigm consists of concepts that are located within a logical and sequential frame; it reflects a formal structure and research with existing theory, and is based on particular concepts and suggestions, discovered from experimental monitoring and conjecture (Gray, 2013). This section discusses the research philosophy approaches, the rest of the onion stages are methodological choices, approaches and the data collection analysis, which will be discussed later on in this chapter. Figure 4.1 clarifies the research onion; it is a simple analogy as the external layers take place before the central one and affect it, which is clear because the central layer cannot be reached before the outer layers are peeled off. The research onion explains the philosophy of the research, and enables the researcher to understand the suitable knowledge and processes required (Saunders et al., 2012). The philosophy supports the research design and all categories of the research; this explains how the researcher looks at the research (Nesensohn, 2014), and it includes the philosophical position from the ontological and

epistemological viewpoints, whilst the research logic captures the differences between inductive and deductive research. However, the suitable methods are the next stage in the onion, connecting to the research approach, and the final stage is the data collection and analysis.

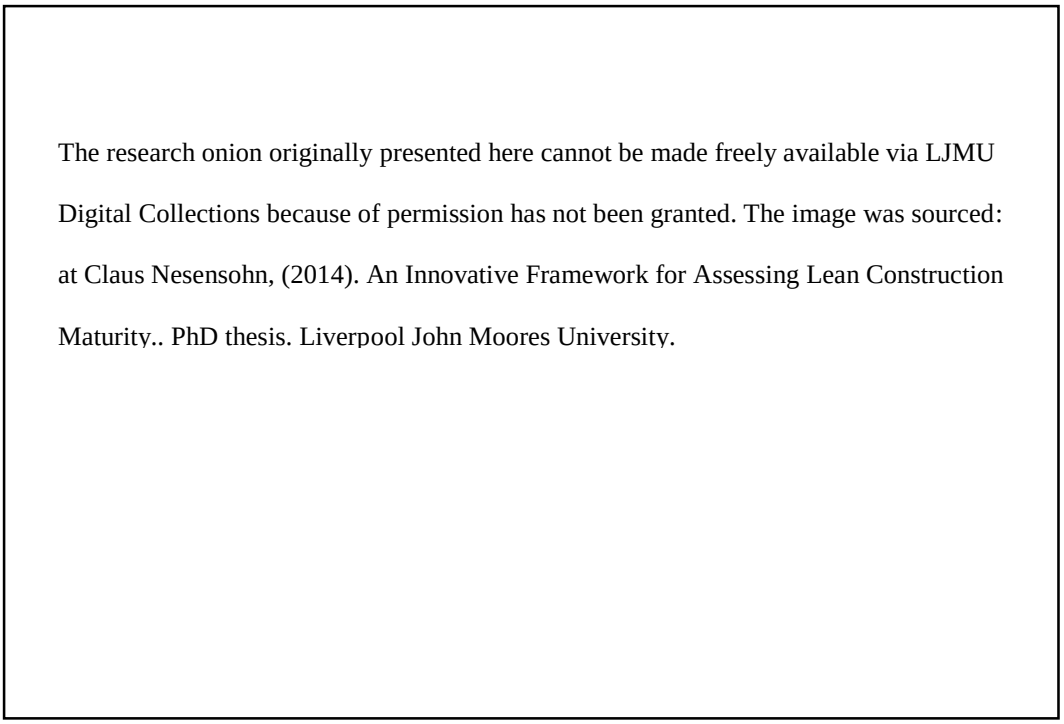

Figure 4-1 Research onion, as adopted by Nesensohn (2014)

4.2.1 Philosophy and Assumptions

Research philosophy is an overarching term connecting the development of knowledge with the nature of that knowledge (Saunders et al, 2009). It contains important assumptions about the way in which the research views the world. The philosophy underpins the whole research; it is the external stage in the onion layers, where the research starts (Saunders et al., 2012). The research philosophy in Figure 4.2 consists of ontology and epistemology, which lead to the theoretical perspective (Crotty, 1998).

The research philosophy originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Crotty, M. (1998). The foundations of social research: Meaning and perspective in the research process, London: Sage.

Figure 4-2 The research philosophy (Crotty, 1998)

4.2.1.1 Ontology

Ontological it is a way of constructing reality (Denzin and Lincoln, 1998). Moreover, the ontological researcher tries to pose the question of what is the being of nature, reality, and existence; what can be known about it? In addition, it is about the assumptions about the way in which the world works. There are two aspects of ontology according to Saunders et al. (2012). The first one is objectivism, which portrays the position that social entities exist in reality external to social actors concerned with their existence; it uses the words of participants in quotes and themes to show different perspectives. The second is subjectivism, which holds that social phenomena are created from the perceptions and consequent actions of those social actors concerned with their existence, where it is argued that both are acceptable and able to give valid knowledge.

4.2.1.2 Epistemology

While ontology explains 'what', epistemology shows "what it means to know" (Crotty, 1998). Epistemology is a different form of knowledge concerned with reality, where it knowledges the relationship between the inquirer and the inquired; however, epistemology is significant for any research because it shows the difference between objectivist research and subjectivist research (Crotty, 1998). There are two aspects of epistemology shows the objectivism mean that there is only one truth because it objective and natural it can be studied, researcher and participant are independent truth can be studied without influencing/influenced (Abrami at el.,

2009). Subjectivism in epistemology means that there is no one truth; there are multiple truths and realities, and truth is subjective to each person. Researchers try to get into the field and participate to gain understanding of participants' views of their reality (Abrami at el., 2009).

4.2.1.3 Theoretical Perspectives

The theoretical perspective is theory that comes before the research approach; moreover, the perspective is an important stage in choosing the approach and methods (Crotty, 1998). The two theoretical perspectives are objectivism and subjectivism. The theoretical perspective of qualitative inquiries attempts to explain, understand and interpret the social reality (Grix, 2010), whilst the quantitative one gives credible data through clearly observable phenomena, to set the hypotheses which build from the existing theory. The latter is suitable in management and business research, where it provides a middle space between objectivism and social subjectivism theoretical perspectives by understanding the social condition (Saunders et al. 2012). This research is positioned along this continuum with objectivism, where an objective reality can be addressed through the knowledge of positivism and realism. Table 4.1 shows the differences between ontology and epistemology in ***Objectivism*** and ***Subjectivism.***

Table 4-1 Differences between ontology and epistemology (Saunders et al., 2012)

The differences between ontology and epistemology originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Saunders, M., Lewis, P. and Thornhill, A. (2012). Research methods for business students, 6th ed, Harlow: Pearson.

4.2.2 Research Approach

Concerning the research approach, it is important to know at the beginning whether the research should use the inductive approach, by collecting data and developing a theory because of the

data analysis, or the deductive, by developing a theory and hypothesis (or hypotheses) and designing a research strategy to test the hypothesis/hypotheses. Different types of reasoning are considered: induction and deduction, and a third approach, abduction, where both the previous approaches are conducted (Saunders et al., 2012; Creswell, 2013).

4.2.2.1 Induction

The inductive approach moves from fragmentary details to a connected view of a situation, to understand what is going on in reality, and to identify and better understand the problem. Moreover, after the data collection, theoretical analysis of that data takes place. Furthermore, the research could come up with the same theory, but it could produce that theory by using an inductive approach, so the theory would come after the data, as shown in Figure 4.3.

Figure 4-3 How the inductive approach works

4.2.2.2 Deduction

The deductive approach owes much to what is called scientific research, where it develops a theory that is subjected to rigorous testing, and it is a dominant research approach in the natural sciences. It begins with a universal view of a situation and works back, moving towards hypothesis testing, after which the principle is confirmed, refuted or modified, as shown in Figure 4.4 (Gray, 2013). Table 4.2 shows the differences between the deductive and inductive approaches.

Figure 4-4 How the deductive approach work

Table 4-2 Differences between deductive and inductive approaches to research (Saunders et al., 2012)

The differences between deductive and inductive approaches to research originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Saunders, M., Lewis, P. and Thornhill, A. (2012). Research methods for business students, 6th ed, Harlow: Pearson.

4.2.2.3 Abduction

The third research approach is abduction, which states that new ideas and good theory do not emerge through induction or deduction but could be gained by mixing them (Suddaby, 2006), which is the research approach used in this study. The abduction approach is new, and there is a debate about it; it may be more appropriate to work inductively by generating data and analysing and reflecting upon what theoretical themes the data are suggesting. Moreover, there is a continuous interplay between concepts and data; any changes or something new in the research are part of abduction (Van Maanen et al., 2007). However, abduction is a huge approach but it gives the researcher a chance to build the right approach for the research (Bryman 2012). Abduction enables a new, plausible theory to be suggested if a surprising fact emerges, to explain how this could have occurred. These surprises could happen at any stage in the research process (Saunders et al., 2012). Figure 4.5 shows how the abduction approach works in this research.

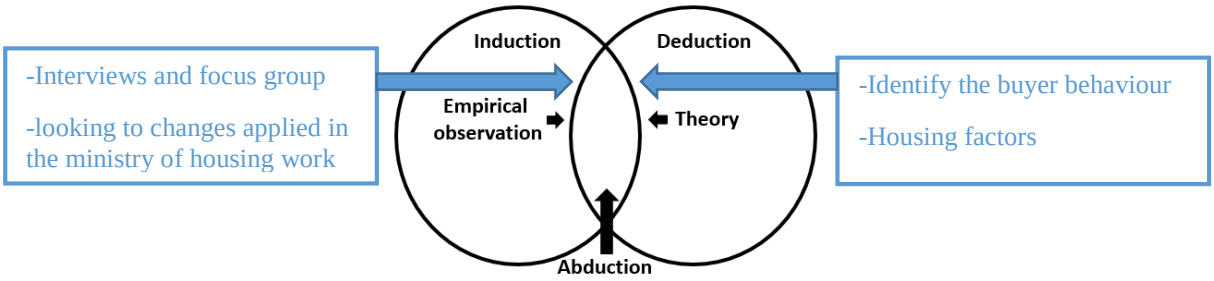

Figure 4-5 How the abductive approach works (self-study)

This study uses the abduction approach, where the theory is different to the reality. The research starts with the induction approach by going back to the literature review and extracting the abductive approach, and then testing it. Then, using the deductive approach, it elicits the home variables and then designs the questionnaires for the purpose of gathering data in a specific time and place to depict the opinions of people at that time. However, then inductive factor analysis is used to design the model, which contains variables identified from the literature review. Furthermore, it is validated via inductive and deductive focus group by different people at another time.

4.3 Methods Strategy

The study will firstly start by looking at the secondary data, which consists of a desktop study that will seek to identify the problems in the housing sector and how they have arisen. The review will evaluate and interpret all relevant and available literature on the research topic. The literature review will initially focus on books, journals and reports that relate to housing in general with a focus on homeownership along with a case study to identify and analyse existing consumer preference models used in other countries. However, the main goal is to identify and develop the author's knowledge in relation to housing problems and consumer preferences by looking into the concept and measurements in the existing research. This review also is also intended to enable the researcher to recognise any gaps in the topic. Through investigating the literature (Figure 4.6), it was clear that one of the reasons for the housing problem in Saudi

Arabia is the lack of understanding and knowledge of what the consumers need and desire in their homes. Knowledge of the different home preference factors was the milestone in this study, where defining and measuring these factors would provide a path to the research question. In addition, whilst on this path, a gap in the research was identified. Although there was literature that provided knowledge of the topic, it did not provide all the data required to achieve the study's aims in relation to gaining a better understanding of consumers' preferences and developing a model to represent those preferences. Thus, the primary data needed to be gained and analysed, which comprises the data collection (questionnaire–interview–focus group) part of this research; however, this required different methods, which will be explained in this chapter.

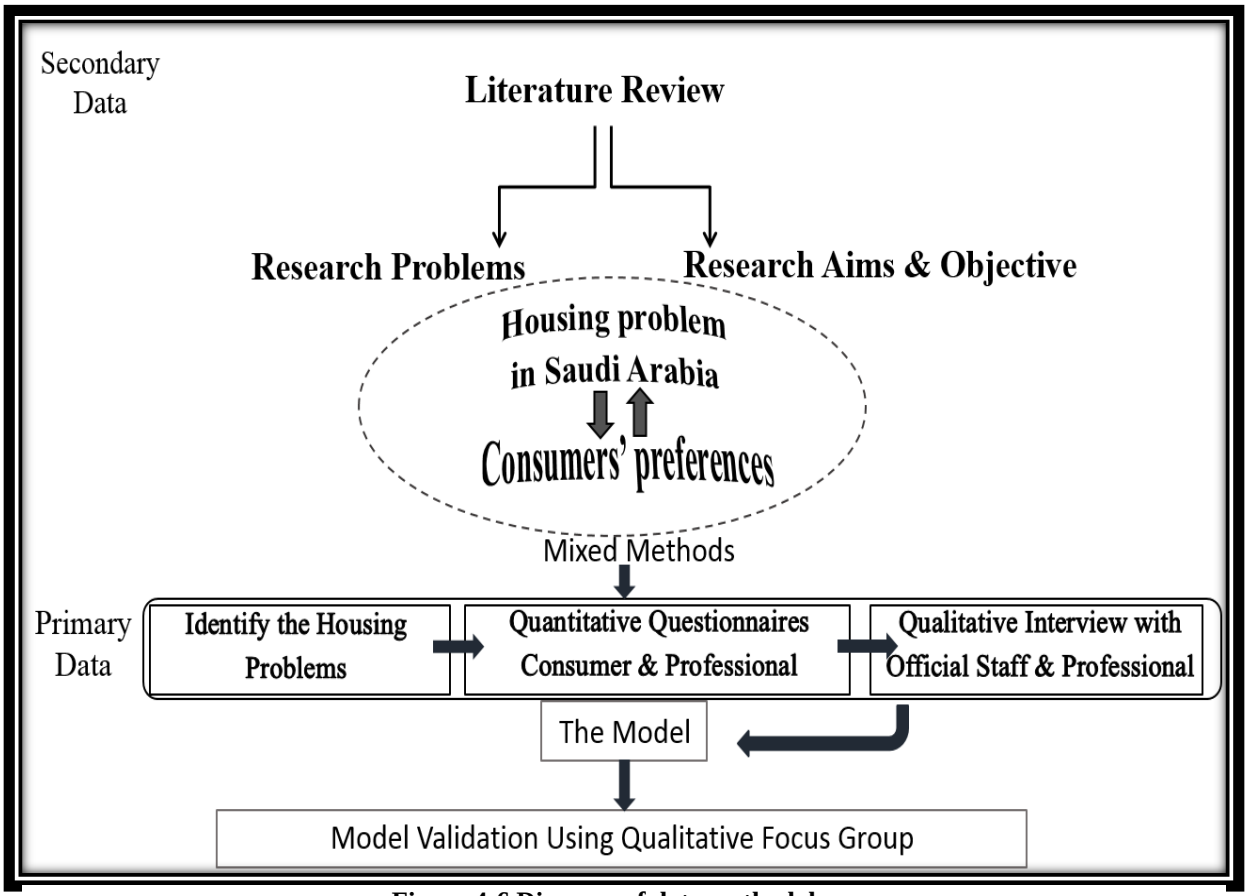

Figure 4-6 Diagram of data methodology

Mixed methods research contains two major research methods, quantitative and qualitative. Quantitative research entails analysis of statistical data (Smith, 2012). This means that, in quantitative research, all the collected data can be quantified or counted. The quantitative method is based on prior ideas and well-structured questions to be asked to all the respondents. This means that the information is condensed to focus on a specific area of interest, in which the respondents are asked identical questions. For the purposes of this specific research on consumer preferences, quantitative research will be conducted in the form of a questionnaire, in which consumers and professionals will be surveyed. This means that a survey will be conducted with consumers and professionals to gain insight into consumer preferences in the housing market, where the survey could be a good method to gather and measure the social priorities (Joost, 2010).

Qualitative research, on the other hand, entails the analysis of data such as pictures (for instance, a video), words (for instance, from interviews), and objects (for instance, an artefact), as well as reports. Qualitative research requires information to be collected in a non-numerical manner, and can include responses to open-ended survey questions, an essay question, or thoughts from a focus group. However, qualitative data is not limited to words, but can also include the contents of a design portfolio. In essence, the qualitative method is where the objective is to extend knowledge and understanding (Creswell, 2011). When using a qualitative method, the interviewer is required to guide the respondent as little as possible. Through the qualitative method, the respondents are expected to give their thoughts and opinions based in their own experience and valuations. Qualitative research is considered to be an effective framework or strategy for conducting social research such as this study's consumer preference research. For the purposes of this particular research, qualitative research will be carried out in the form of interviews, in which the relevant official staff and professionals will be interviewed. This means that interviews will be conducted with government officials and experienced

professionals to discuss the data obtained from the questionnaires. The main advantage of qualitative research is that it facilitates the gathering of contextual information while collecting the data. This means that 'why' is apparently provided in the available data. The respondents respond freely and the contextual information or 'why' is automatically embedded in their responses. Nevertheless, qualitative research is usually time-consuming. In this regard, since time is often associated with additional costs, qualitative research is more expensive (Detterman, 1995).

4.4 Research Design

A research design can be referred to as the plan of a study. The study's research design defines the type of the study (correlational, experimental, descriptive, review) and the subtype of the study (Kothari, 2012). In essence, the research design of this consumer preference study highlights the statistical analysis plan and data collection methods. To this end, this study's research design is a structure that is created to simplify the obtaining of answers for the research questions. This research will be undertaken by the use of a mixed methods research design. This is because this study will entail fact-finding, and is expected to result in the formulation of solutions and knowledge in the area of consumer home preferences in Saudi.

To achieve the goal of this research, a mixed methods approach will be adopted in order to alleviate the problems associated with purely quantitative or qualitative methods by using mixed methods to integrate the two approaches (Creswell, 2011). There are many possible ways to proceed and analyse qualitative data. One can read all the data before rereading records for each case, or read and reread the records for each case before going on to subsequent cases. The analytic operations – categorisation, abstraction, comparison, integration, iteration, and refutation – provide a means for managing qualitative data for the purpose of analysis and interpretation (Spiggle, 1994). People in different countries and cities vary significantly in their answer styles; these variances can lead to biased conclusions.

A mixed research method includes both quantitative and qualitative elements in such a way that they complement each other. Using the qualitative method, this study will gather in-depth data to answer some research questions, and using the quantitative method the researcher will gather numerical data from other questions. However, using a mixed method in this study will enable the combination of both quantitative and qualitative items regarding the consumers' home preferences because it give the ability to test the views by both methods. Moreover, the mixed method will include analysing and integration of the data for both methods to design the model. Figure 4.7 shows the how the data will be gathered sequentially. The main advantage of a mixed method is that it balances effective data collection and analysis. In this regard, it is quick to gather the quantitative data, and it easily captures a large amount of data from a large group, while qualitative data offers the reporting of information, which facilitates interpretation and understanding of the quantitative data. The main challenge of the mixed method regards ensuring that the data collection techniques complement and do not duplicate each other by designing them to complement each other. This will assist in gathering data that provide effective and objective results for the consumer preferences (Creswell, 2011).

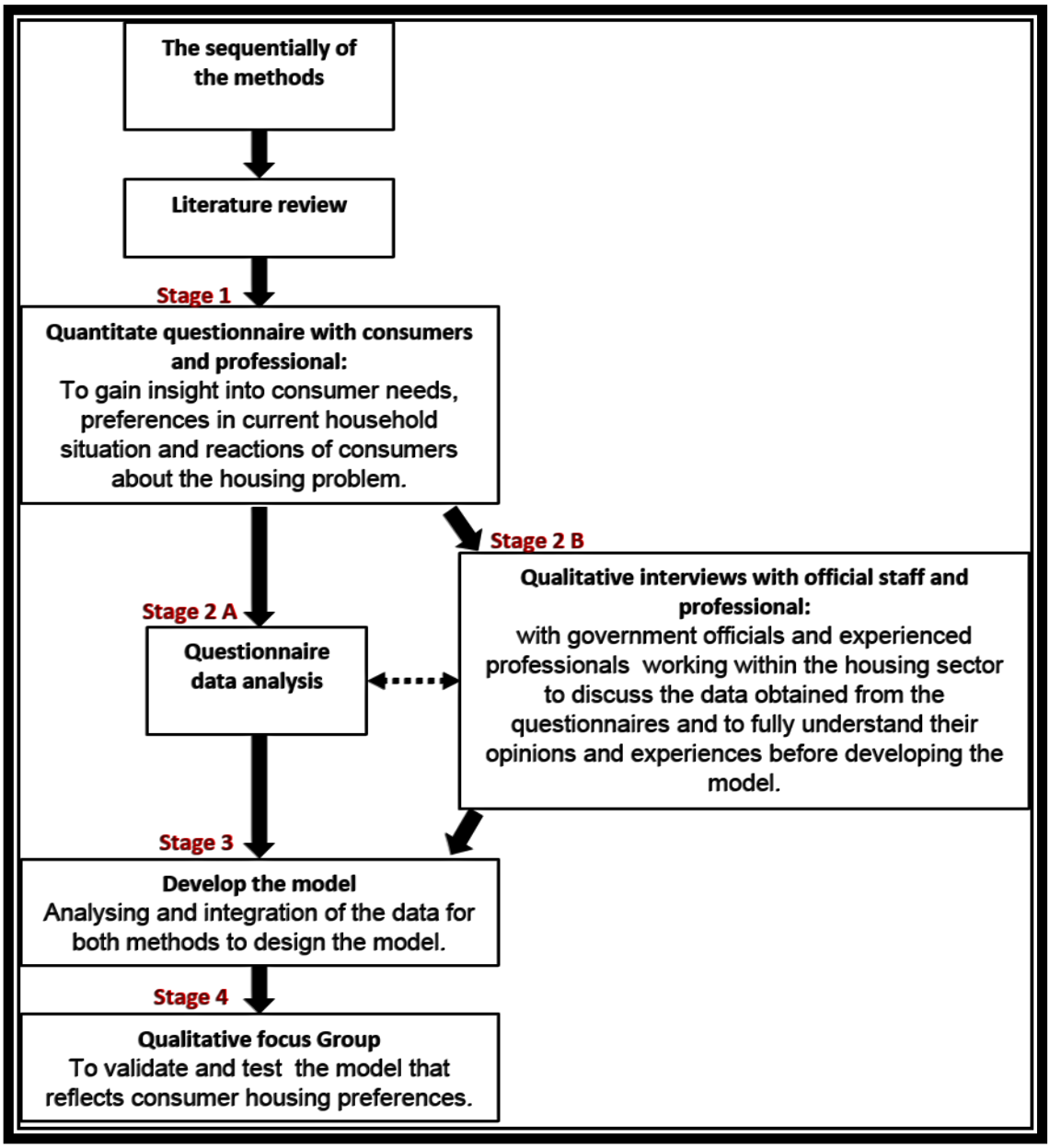

Figure 4-7 Research strategy

4.4.1 Quantitative

Initially, a close-ended questionnaire will be conducted with housing consumers in Saudi Arabia to gain insight into consumer needs, preferences with regard to their current household situation and their reactions to the housing problems. There will be another questionnaire conducted with experienced professionals working within the housing sector, such as architects, contractors, consultants, project managers and real estate developers. The questionnaire will use some of the same questions as the consumer questionnaire to allow the

researcher to test the different preferences for housing, in order to test hypotheses concerning the awareness of housing consumers and obtain spontaneous answers.

4.4.2 Qualitative (Interviews)

Semi-structured interviews will be conducted with government officials who work in the Ministry of Housing and the Ministry of Municipal and Rural Affairs. The interviews will allow discussion of the data that were obtained from the consumer questionnaires and to fully understand the officials' opinions and experiences in relation to the housing problem and gain a deeper understanding of the issues. Moreover, the interviews will enable the researcher to collect information about the Saudi housing sector, which is difficult to find in published sources.

4.4.3 Qualitative (Focus Group)

Focus groups will be conducted separately with consumers and professionals, to validate the home preferences models, which is the final stage before creating the consumer preferences model for housing. The participants will be able to discuss the home preferences with each other, to find out if there is anything missing from the models.

4.5 The Research Methodology Approach

This study contains three methods to collect the data starting with questionnaire and interviews and ending with validation by using focus groups.

Ethical approval

Before collecting the data ethical approval needed to be applied for. Full ethical approval from the University's Research Support Committee was requested for the study in order to make sure that all respondents who participated in the quantitative or qualitative study fully understood and were clear about all the procedures and risks from the research. This was obtained by briefing each interview participant on the research scope and process and by

getting a completed consent form from each participant. On the other hand, the questionnaire participants were provided with information before starting the survey.

4.5.1 Quantitative Data (Questionnaire)

There are many alternative ways of collecting data, depending on the nature of one's research. This might involve measuring output or performance on some objective criteria, or rating behaviour according to a set of specified criteria. It might also count the use of scales built as part of an underlying construct or variables that are indirectly measurable. There are many measurement scales which can be used in research; finding the right one for the researcher's purpose is sometimes difficult, and reviewing the literature in the particular topic area is the first place to begin (Pallant, 2005).

When choosing the right measurement, the researcher needs to ensure reliability and validity. These two factors can affect the quality of the data received. When reviewing the measurement that is used, the researcher needs to count on the reliability and validity of each of the scales. Even if the review concerns the reliability and validity of the measurement, it is important to conduct a pilot test with the sample. This is because the scales might be suitable for some groups, but unsuitable for other groups. This survey collected data using a structured questionnaire conducted in the major cities of Saudi Arabia. The questionnaire addressed several housing-related issues, including respondents' current housing tenure, type of housing, satisfaction with current residence, housing preferences, and importance of housing factors. Respondents also provided socio-demographic information. Researchers have noted some advantages and disadvantages of questionnaires (Bloom et al., 1982, Burns, 2000, and Raj, 1972), as follows:

To gather information there are advantages to using a questionnaire such as it is easy for respondents to fill in individually without any help or interference, unlike interviews or focus groups; also, it permit anonymity, which increases the response rate and the responses reflect

the genuine opinions of the respondents. In addition questionnaires are able to address a large number of questions on the same topic, where it one of the effective ways of conducting large studies in vast geographical regions. Moreover, they offer an equal chance for each participant because they provide limited ideal questions for comparison and are a familiar technique to individuals, so the survey will not be confusing for or cause apprehension to participants. Finally, questionnaires are less intrusive for respondents because they can be sent by email. They can also be easily analysed by the researcher, for example, by entering data into computer software like SPSS or Excel. On the other hand, there are several disadvantages with questionnaires, such as they need a suitable design; also, there is a greater possibility of a participant missing a questionnaire if it is sent by post. In addition, the lack of personal contact could lead to low-quality responses, although this problem can be resolved by creating a better design, wording, sequence and structure, but it is difficult to check participants' answers, as there is no flexibility to follow-up on them. The final disadvantage about questionnaires is that, if some people lack confidence in the research, there is a chance that they will not respond.

4.5.1.1 Design of the Questionnaire

In this method, questions are designed to obtain all the data and information that the research needs to reach its objectives. It is the fastest and most effective method of gaining statistical opinions (Parasuraman, 1991). A questionnaire refers to a research instrument that consists of a number of well-designed questions for collecting information from respondents. Since this study on consumer preferences will utilise a survey research design, a questionnaire will be of great significance.

There are three basic types of questionnaire: structured questionnaires, unstructured questionnaires, and semi-structured questionnaires. Structured questionnaires are primarily based on closed questions that generate data, which can be analysed quantitatively for trends and patterns. The outline is predetermined by the researcher and allows limited flexibility to

respondents to provide reasons for their answers. Unstructured questionnaires are predominantly based on open-ended questions that allow respondents the flexibility of offering their own opinions and reasons. Lastly, semi-structured questionnaires are a mixture of both structured questionnaires and unstructured questionnaires.

There is a difference between closed-ended and open-ended questions. Open-ended questions ask the respondents to write their own answer while closed-ended questions require the respondents to select an answer from a number of given options. The options in the closed-ended questions should be mutually exclusive and exhaustive.

The main advantages of using questionnaires include: they facilitate quick collection of data, participants are offered the opportunity to give feedback, and feedback is mostly anonymous, which encourages honesty and openness (Wolpe, 1998).

Nevertheless, questions can be interpreted or understood differently by different respondents. A difference is made between a questionnaire that has questions that measure variables, and a questionnaire that has questions aggregated into a scale. The latter category is commonly part of tests while the first category is commonly part of surveys (Chandra et al., 2013). The questionnaires in this study will have questions that measure consumers' variables; they will include questions on consumer behaviour and consumer preference. In addition, the questions that will be scaled will include questions that measure consumers' attitudes, consumers' important variables, and consumers' preferences.

4.5.1.1.1 Bias in Questionnaire

Bias in a questionnaire can be very detrimental to the results of a study. A survey bias normally occurs because of errors in the questionnaire design. This bias is caused by the way the questions are worded, the structure of the questionnaire, question design or type, as well as the colouring and styling of the questionnaire. Any of these four problems could result in a remarkable increment in a study questionnaire's bias (Jha, 2008).

In order for the researcher to avoid bias in the questionnaire, the following basic rules will be complied with in this study:

- ❖ Use statements that are interpreted and understood in the same way by all respondents.
- ❖ Use positive statements and avoid negative or double negative statements.
- ❖ Refrain from making assumptions regarding the respondents.
- ❖ Use understandable and clear wording.
- ❖ Questions should not attempt to lead the respondents towards the answers.
- ❖ Use correct grammar, spelling, and punctuation (Scruggs et al., 2006).

4.5.1.1.2 Designing the Housing Variables in the Research

With the huge number of options in housing, consumers cannot hope to know them all; all they can hope to do is evaluate the criteria based on their perceived benefits (Hawkins et al., 2011). However, the important housing factors can be sorted into two different categories: internal housing variables and external housing variables (Cupchik et al., 2003). Some studies include environmental variables such as neighbourhood and location facilities and services (Pasha et al., 1996) in the external variables. Figure 4.8 shows the theoretical framework of the research; these main factors will be the categories from which the model is built in this study.

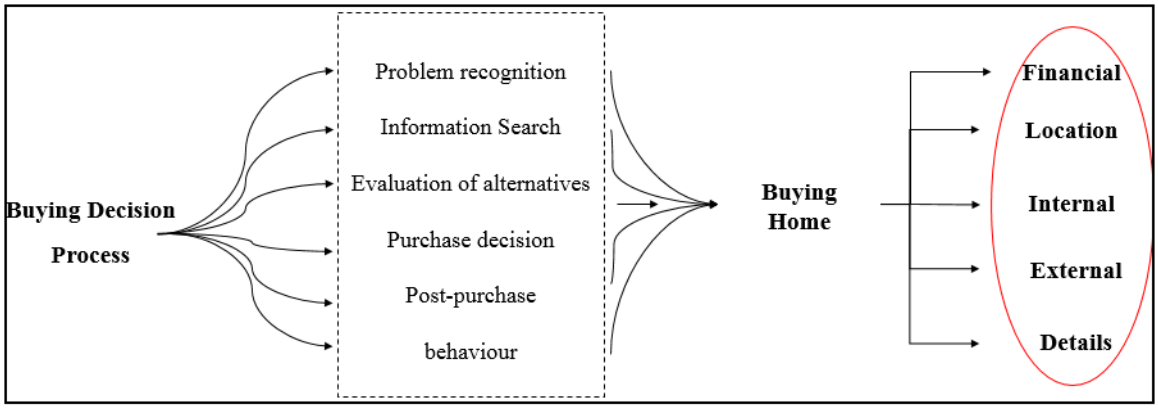

Figure 4-8 The theoretical framework of the research

Identifying and knowing the variables is an important stage before designing the survey, asking the demographic questions at the beginning, then continuing with questions about the housing problem in regard to government regulations and how to fund a property in the light of current market prices. Measuring some of this information enables the researcher to know the reason for the housing problem, according to respondents' views.

The next step looks at the location variables where, after an investigation about housing location preferences in different information resources, the most popular preferences for the location are found. Moreover, the preferences in internal and external design are an important section in the questionnaire, in order to establish the most important variables consumers are looking for, by knowing the level of importance of these variables, in addition to some specific questions about home details which could be important for some consumers.

The Financial Variables

The financial sector makes one of the most important contributions for homebuyers, and could be the leader in some cases. In Saudi Arabia, the home price is one of the main reasons for the housing problem, and there are multiples causes for that, such as the land and construction cost, the financial risk from buying a home now, the fact that only a low number of home mortgages are offered, and, finally, the home's quality compared to its value. There is also the government's role in setting up regulations, the Ministry of Housing, and the current political situation in the country and, in addition, the social effect from the financial side. This study includes 18 questions about the financial situation, where the variables identify the housing problem in Saudi (Table 4.3), and solution to the issue of purchasing homes; however, knowing the expectation of consumer about the government projects and regulations is important to link it to the problem.

Table 4-3 Definitions of financial variables

The variables	Definition
Increased prices FF1	Does the increase in prices in the housing market affect the Saudi citizens financially, whereas UN rules state that it should not take more than 30% of their monthly income (JEF, 2013)?
Financial risk FF2	Purchasing or building a property now with the increased prices is a financial risk, where it could be a reason for less confidence about the economy if the price falls in the future (Kauko, 2006).
Pay cash FF3	Citizens in Saudi Arabia do not like to take out home mortgages; they prefer to pay in cash. Only 20% of bank mortgages are for home loans (Bank Saudi Fransi, 2011).
Solution: purchase homes FF4	Could the real estate mortgages be the solution for those who do not have the cash to purchase homes? They may increase the number of people who own homes, because they are a kind of saving (Samba, 2010).
The high interest FF5	The high interest applied on mortgages is the reason for the lack of home mortgages; the banks in Saudi use a fixed percentage for the loans in all the mortgage years from the total amount of mortgages, which is a cause of high interest (Saudi Arabian Monetary Agency, 2014).
Mortgages offered FF6	The mortgages offered by the government and banks meet citizens' needs and preferences, but the (RFD) loan from the government is low and not fit for purpose (Bank Saudi Fransi, 2011). With regard to the bank loans, most of them are higher than the consumers' ability to repay them.
Home values with quality FF7	The present house values are compatible with their quality, where the prices are high but the quality of a home fits its price (Al-Otaibi, 2004).
Land price FF8	The increase of land prices is one of the reasons for the housing problem. In the last 10 years the land price has increased greatly, which makes it difficult to own a home (Reed, 2007).
Construction cost FF9	The construction cost is one of the reasons for the housing problem. In the past, construction was about 60%-70% of the cost, although now it is only 30% to 40% (Cheol-Joo Cho, 1997).
Developed by individuals FF10	Most of the homes in Saudi are developed individually, which is about 90% of home development (Bahammam, 2001).
Building own home FF11	Building your own home is better than buying it from a real estate developer, as consumers do not have much confidence in developers (Lei Wen et al., 2013).
Easy to open a real estate construction office FF12	The quality of housing development in Saudi is affected negatively because it is easy to establish a substantial estate and construction office; there are about 850,000 companies working in the construction business in Saudi Arabia (Mubasher, 2014).
Housing delivered FF13	Whether the housing that is delivered to the real estate market is suitable for citizens' preferences, where sometimes the price is high, the size is too big or the floor plan design is not suitable (Century21, 2013).
Regulation FF14	The government design and building regulations hinder the home developers in meeting the consumer preferences, where the developers think the regulations stop them, and this is the reason for the lack of home-ownership (Bahammam, 2001).
Modifications after buying FF15	People still make modifications in their homes after moving in, which has led to what is delivered to the market being unsuitable for the consumer for a long time (Bahammam, 2001).
Sharing house FF16	There is currently a tendency to go back to the extended family style of living, sharing the same house. With the increase in house prices, sharing a house is one of the solutions that Saudi families utilise now (Dietrich Earnhart, 2002).
Ministry of Housing work FF17	The work the Ministry of Housing has completed from 2011 has had a significant impact on the housing market (Jif, 2013). However, the developers think that the Ministry has failed to find a solution and has had a bad impact on the real estate market.
Political situation in Saudi FF18	The political situation in Saudi is stable and encouraging for house purchase: a lot of change has happened in 2015 to the royal family in Saudi, which gives much confidence about the political situation (Alriyadh, 2015).

The Location Variables

Location is investigated as the reason for buying a home in a particular neighbourhood, choosing a neighbourhood in which to buy a house or the land on which to build a home. This is one of the homebuyer's first determinants; often the buyer starts with a list of neighbourhoods he/she prefers, and often these options are based on variables specific to the neighbourhood, such as how far the site is from the city, how near the neighbourhood is to the buyer's relatives, accessibility of the neighbourhood, and the level of safety it offers; the availability of services in the neighbourhood is also a consideration. This study includes 13 location questions, where there are different variables for location preferences (Table 4.4) which could be the reason for buying a home in the neighbourhood. These variables have been identified and included in questions in order to find out the consumers' preferences.

Table 4-4 Definitions of location variables

The variables	Definition
Closeness to family LF1	In the past, closeness to relatives and family was important for buyers who did not want to be far from their family, which was divided into regional groupings (Kauko, 2006).
Quality of the neighbourhood LF2	For the homes and infrastructure (Al-Momani, 2003).
Safety of the neighbourhood LF3	How secure the neighbourhood is from robbery and how safe it is for residents who live in the neighbourhood (Jabareen, 2005).
Cleanliness of the neighbourhood LF4	The level of cleanliness in the area, and how the neighbourhood is organised. Also, the environment and green buildings (Vedia DoÈkmeci, 2000).
Closeness to school LF5	How far the location is from a school (Sirgy, 2005).
Services in the neighbourhood LF6	Neighbourhood services such as shopping centre, play area and library (Kauko, 2006).
Near to public transport LF7	There is currently a lack of public transport in Saudi Arabia; however, there are some new projects in big cities like Riyadh and Jeddah (MOT, 2014).
Accessibility of location LF8	The accessibility of the location and the quality of the roads in the neighbourhood (Kauko, 2006).
Street width LF9	How many streets are opposite the home; the width of the street in Saudi is normally from 8m to 28m (MOMRA, 2015).
Name of district LF10	The name of the district and the social class of the people who live there (Bahammam, 2001).
Design of district LF11	In the new neighbourhoods in Saudi, there are new methods of design with pathways and green areas (Parkes, 2002).
Fresh air in location LF12	The air quality in the neighbourhood, and how far the location is from industrial areas and noise (Hofman, 2006).
Soil of land LF13	Knowing the soil and the land is not prone to flooding; sometimes it is difficult to find good soil on which to build, and it could be more than 10 m under the street level (Dietrich Earnhart, 2002).

External Design Variables

The external design specifications could be the reason for buying a home; some homebuyers consider these to be the main elements when they choose their home; the lot size, building size and the number of storeys are important external variables. In addition, the aesthetics of the building from the outside and the type of materials used for the finish could affect the homebuyers' decision. Moreover, some of the external elements such as the number of parking spaces and the size of the garden make a house more attractive. This study includes eight external design questions, where there are different variables for external design preferences (Table 4.5) which could be the reason for buying a home. The questionnaire asks about these variables to identify the consumers' preferences.

Table 4-5 Definitions of external design variables

The variables	Definition
Aesthetics EXF1	Aesthetics and building design and how the shape of the building looks from outside (Bahammam, 2001).
Finishing EXF2	Type and quality of finishing such as painting, flooring, etc., and the kinds and quality of the materials used (DoÈkmeci, 2000).
Garden EXF3	The size of the garden and courtyard, which should be, as per government regulations, at least 40% of the lot size (MOMRA, 2015).
Lot size EXF4	People normally prefer a large lot size, and the Saudi government regulations specify that the lot size should be at least 200 m² (MOMRA, 2015).
Building size EXF5	The size of all the floors together as the footprint.
Bigger home even if it is far from a city EXF6	Sometimes people choose to have a bigger home but outside the city, such as the suburbs (Bahammam, 2001).
Number of parking spaces EXF7	Number of parking lots inside the home's courtyard or the space outside the home (Fontenla, 2009).
Number of building storeys EXF8	As per the home regulations in Saudi, the maximum number of floors in a home is two and 60% of the roof footprint as the third floor (MOMRA, 2015).

Internal Design Variables

The architectural design of homes is important to meet the consumers' needs, as the design components and the space in the home influence the homebuyer, and fulfil their functional preferences, where the modernity of the design gives the homebuyer the potential of more open space in their home. Providing privacy for the people who live in the home, and designing the right number of bedrooms and bathrooms are important design elements, in addition to

providing some private space for the family, and places for visitors, and a storage and facility room. There are different variables for internal design preferences, and this study includes 11 internal design questions (Table 4.6). Identifying these variables and asking questions about them will help to understand the consumers' preferences, their reason for buying a particular home.

Table 4-6 Definitions of internal design variables

The variables	Definition
Functionality INF1	Functionality and spaciousness of the design and how suitable and comfortable it is (Al-Otaibi, 2004).
Modern design INF2	Modern design (open kitchen, open space, etc.) where there are changes to the traditional design (Al-Otaibi, 2004).
Privacy INF3	Privacy, e.g., from neighbours or visitors, where the government regulations specify that each home must have a fence at least 2 m in height (MOMRA, 2015).
Number of bedrooms INF4	More bedrooms are preferred (Kauko, 2006).
Number of bathrooms INF5	More bathrooms are preferred (Kauko, 2006).
Space for family INF6	The presence of a private space for the family (Parkes, 2002).
Visitors' space INF7	Larger space for the visitor's room (Parkes, 2002).
Storage room INF8	The presence of a storage room (Bahammam, 2001).
Facility room INF9	The presence of facility rooms (Bahammam, 2001).
Size of windows INF10	How big the windows are (Parkes, 2002)
Natural light INF11	How important natural light is for the buyer (Wellington, 2010).

Home Specification Details Variables

These details are important to some homebuyers, and could influence their choice of a home. For example, consumers look at the quality and the age of the building, which reassures them that the home they are going to buy will last. The environmentally friendly nature of the building, the materials, the insulation, and the cooling and heating system could all affect homebuyer choices. This study includes six home details questions (Table 4.7) that could influence homebuyers' choice.

Table 4-7 Definitions of home specification details variables

The variables	Definition
Quality of the building SPF1	Quality of all the building materials, finishing, design and the location of the building (Opoku et al., 2010).
Age of the building SPF2	How old the building is (Hofman, 2006).
The environmentally friendly nature of the building SPF3	How environmentally friendly the city, location and neighbours are (Vedia DoÈkmeci, 2000).
Materials used in the building SPF4	The quality of the materials (Opoku et al., 2010).
Insulation SPF5	The quality of the wall insulation to protect against the weather (Wellington, 2010).
Cold and hot system SPF6	The quality of the mechanical system in the home heating (Vedia DoÈkmeci, 2000).

4.5.1.1.3 Scoring and Measurement

There are different ways to score and measure the questionnaire; one of them is carried out using Likert scales. Upon the completion of a questionnaire, each variable can be analysed singly or the variables' responses can be summed up to generate a score for a number of variables, where a Likert scale is utilised to scale responses in a research survey (Cahoon, 1997). When responding to the Likert questionnaire variables, respondents will indicate their level of disagreement or agreement. Therefore, the scale will capture the intensity of the respondents for each particular variable. Moreover, Likert scale is a technique that will help to measure the negative, positive and middle points. Preparing and structuring the questionnaire in advance with a good design might assist respondents to answer quickly and easily. Hence, designing the survey is a fundamental stage by which to gain the required quality of data in a timely manner, where the main objective of questionnaire design is to increase the number of respondents, while maintaining the reliability and relevance of the data collected by the questionnaire. Explaining the aims of the questionnaire, providing a suitable structure and design, and following up the respondents can raise the number of participants. The covering letter is counted as a good opportunity to encourage people to fill in the questionnaire, as it provides the respondents' first impression (Bisset, 1994). With regard to questionnaire length, some researchers believe that a long questionnaire will receive fewer respondents than a short

questionnaire, and it is true that length sometimes affect the respondents; however, interest in the topic makes respondents respond regardless of the length of the survey. The questionnaire for this research has been designed as a long questionnaire; it is made up of 73 questions in six categories, a total of 10 pages. The rate of response was about 70%, which suggests that the research topic was found interesting, and the way of collecting the data was satisfactory.

Opinion Measurement

There is a huge demand for social information, which provides social indicators, which is a massive challenge to collect; much of the research suggests that objective measures with subjective measures will benefit a study at the community level (Hempel, 1979). People have different motivations at the time of answering a survey, which is entangled with other concerns such as narrow self-interest, and, in addition, decision-makers have the straightforward goal of maximising personal payoffs. The assumption of narrow self-interest, without concern for others, is the foundation for rational choice theory (Murphy, 2015). Likert scales are commonly applied in different fields such as behavioural sciences, healthcare, marketing, and usability research (Joost, 2010). The Likert scale measurements have a special style: discrete instead of continuous values, tied numbers, and restricted range (Joost, 2010). The high use of rating scales in market and social research has led to a great deal of concern and debate about the right number of scale points (Garland, 1991). In the Likert scale, there is a level of agreement that statements normally have a scale of five or seven points; the participants need to specify their level for each statement (Joost, 2010). The mean aim of a rating scale is to provide space for respondents to express the strength of their opinion about a topic (Garland, 1991). Although researchers dislike neutral or intermediate answers, as they want the respondents to choose a definite option, they should offer respondents the chance to express a truly neutral position by providing a scale from 1 to 5 (thus offering a neutral point of 3). However, some researchers provide even numbers so there is no neutral position, which this research does not agree with

(Garland, 1991). Where the neutral position because some of the questions are changeable depends on the participant's background where there is no final opinion.

Measurements and Values

There are different methods of handling the data collection. One of these methods is to collect data using a questionnaire, which is used in this study. In the questionnaire, the respondents are asked to assess housing preferences to understand the measurements and values for each variable. The assignment of numbers to objects using certain rules is called measurement (Stevens, 1951). Measuring the preferences is possible theoretically, but needs to have a logical or practical basis. There are multiple ways to find out the levels of measurement to classify any subject, wither scaling or evaluation. The Likert scales measure either totals or average numbers; therefore, with the different items in Likert scales, there is an opportunity to be more reliable. The different items in Likert scales can be used for descriptive statistics, correlation analysis and factor analysis (Brown. 2011). Thereafter, using Cronbach's alpha to check the reliability estimate is a good way to make sure of the quality of the scale.

Scoring Methods

There are four kinds of measurement rating (Figure 4.8), nominal, ordinal, interval and ratio; all are used in scaling based on the subject of interest. The nominal scale is used to set numerical numbers and change them to an object without making any comparison between numbers (Brown, 2011), which means there is no result or ordering of them, for example, gender: male and female. In the ordinal scale, which implies ranking objects in order, the objects show rank order only (Brown, 2011). The numbers do not show quantities and intervals between numbers, which are equally set. An illustration of an ordinal scale is as 1<3<…<5. If in an ordinal type of measurement the intervals between adjacent numbers were equal (Brown, 2011), that type of measurement would be called an interval scale, like 10-20<50-60<70-80. The last type of measurement is the ratio scale; there is a different between ratio scales and

interval scales, where a ratio may have a zero value and points along the scale make sense as ratios (Brown, 2011). For example, a scale like age can be zero. According to Kerlinger (1986), ratio scales are the highest level of measurement.

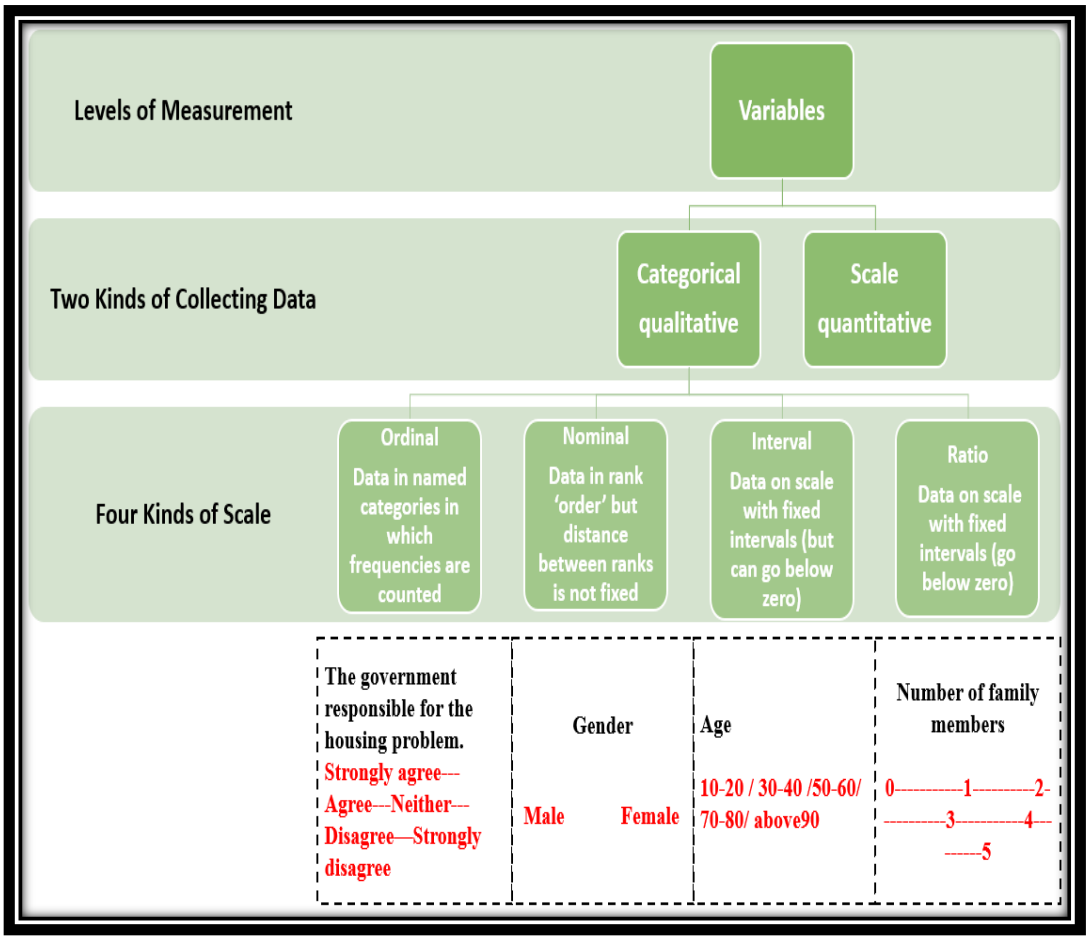

Figure 4-9 Types of measurement rating. (Self-study)

Questionnaires designed and developed in this study were used to collect different individuals' points of view on home preferences and the housing problem. Based on their personal experience and knowledge, consumers and professionals scored the question indicators. Therefore, the information gathered through the questionnaires is considered to be subjective qualitative data. It may be that the phenomenon to be measured can often only be measured by nominal or ordinal scales (e.g. quality of life, various symptoms). This type of data is

commonly used in questionnaire responses. An adequate presentation and analysis of the data is essential to eliminate several problems and errors as well as to draw correct conclusions (Jakobsson, 2004). In this research, the questionnaires were designed using nominal, ordinal and interval-based scaling in the preferences questions, each with a score from 1 to 5. The respondents were asked to put a score to every variable based on the level of importance. Table 4.8 illustrates the scaling method employed in this research in the questionnaire design. The scoring can be interpreted by using verbal terms as well. At the beginning, the survey asked bio-demographic questions, than started to ask about the financial preferences and housing problem in Saudi, where the respondents needed to answer about the extent to which they agree or disagree, where 1 is allocated as Strongly Agree, 2 Agree, 3 Neither, 4 Disagree and 5 Strongly Disagree. Regarding this level of importance, scores of 1 are allocated for items which are very important as home preferences where scores of 5 are assigned to indicators which are not as important in the location, internal design, external design and home specification details. (See Appendix 1 for the questionnaires).

Table 4-8 The level of measurement for all the variables in the survey

Questions	Variables	Level of Measurement (Ordinal – Nominal – Interval – Ratio)
Demographics	Gender	Nominal
	Marital status	Nominal
	Marriage	Nominal
	Age	Ordinal
	Dependents	Ordinal
	Highest level of education	Ratio
	Politics	Ordinal
	Different nuclear families	Ordinal
Financial	Increase prices	Ordinal
	Financial Risk	Ordinal
	Pay cash	Ordinal
	Solution: purchase homes	Ordinal
	The high interest	Ordinal
	Mortgages offered	Ordinal
	Home values with quality	Ordinal
	Land price	Ordinal
	Construction cost	Ordinal
	Developed by individuals	Ordinal
	Building own home	Ordinal
	Easy to open real estate construction	Ordinal
	Housing delivered	Ordinal
	Regulation	Ordinal
	Modifications after buying	Ordinal
	Sharing house	Ordinal
	Ministry of Housing work	Ordinal
	Political situation in Saudi	Ordinal
Location	Closeness to family	Ordinal
	Quality of the neighbourhoods	Ordinal
	Safety of the neighbourhood	Ordinal
	Cleanliness of the neighbourhood	Ordinal
	Closeness to school	Ordinal
	Services in the neighbourhood	Ordinal
	Near to public transport	Ordinal
	Accessibility of location	Ordinal
	Street width	Ordinal
	Name of district	Ordinal
	Design of district	Ordinal
	Fresh air in location	Ordinal
	Soil of land	Ordinal
External design	Aesthetics	Ordinal
	Finishing	Ordinal
	Garden	Ordinal
	Lot size	Ordinal – Interval
	Building size	Ordinal – Interval
	Bigger home even if it is far from a city	Ordinal
	Number of parking spaces	Ordinal
	Number of building storeys	Ordinal
Internal design	Functionality	Ordinal
	Modern design	Ordinal
	Privacy	Ordinal
	Number of bedrooms	Ordinal – Interval
	Number of bathrooms	Ordinal – Interval
	Space for family	Ordinal – Interval
	Visitors' space	Ordinal
	Storage room	Ordinal
	Facility room	Ordinal
	Size of windows	Interval
	Natural light	Ordinal
Home specification details	Quality of the building	Interval
	Age of the building	Ordinal
	The environmentally friendly nature of the building	Ordinal
	Materials used in the building	Ordinal
	Insulation	Ordinal
	Cold and hot system	Ordinal

Designing the Questionnaire Online

Online surveys are part of the wider survey group, but are different to surveys administered face-to-face and by telephone. An online survey is created as a web form to store the answers and allow statistical software such as SPSS to provide analytics. In addition to the online survey using a web form, social media has also turned out to be a suitable platform for distributing surveys. Social media is increasingly changing the online community through providing an easy method of communication, as well as enabling researchers to conduct surveys through social network sites. Social media sites such as Facebook and Twitter have attracted many users, which provides researchers with an opportunity to attract the attention of social media users to participate in a survey (LaCoursiere, 2013), for example, by using advertisements. For the purposes of this study on consumer preferences, the surveys were administered online.

The survey was developed in the Bristol Online Survey (BOS), which is an easy-to-use tool which allows the researcher to design, distribute, and analyse surveys via the web. BOS offers different facilities and there is an unlimited numbers of surveys that can be designed, and there is also no limit to the number of respondents. Users can simply share surveys with different people, and so users can collaborate on the same survey.

4.5.1.2 Questionnaire Sampling

In research, a subset of the target population is found to represent that population, and is used to determine truths about it; this is called the survey sample (Figure 4.9). Survey samples can be divided into "probability" or "non-probability" samples (Field, 2005). The target population is an element to collect data about the population to create result can be generalised to the population. In studies, the rule for determining sample size is that it must be larger than 30, which is appropriate for most research (Roscoe, 1975).

The population sampling originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced: at Roscoe, J. T. (1975). Fundamental research statistics for the behavioural sciences. New York, NY. Holt, Rinehart and Winston.

Figure 4-10 Population sampling (Roscoe, 1975)

Quantitative samples can be found by probability sampling, which includes various techniques to reach a representative sample: Random sampling: selecting subjects so that all members of a population have an equal and independent chance of being selected. Stratified random sampling: selecting a random number, obtaining a list of people, or observing a flow of people (e.g., pedestrians on a corner). Cluster sampling: separating your population into groups or layers. Systematic sampling: obtaining a list of clusters or subgroups. However, the disadvantage of probability sampling is that not all members of the population have an equal chance of being included.

In contrast, Non-probability sampling allows a procedure governed by chance to select the sample, which controls for sampling bias. It includes: Convenience sampling: the process of including whoever happens to be available at the time. Opportunity purposive sampling: the process whereby the researcher selects a sample based on experience or knowledge of the group to be sampled. Quota sampling: the process whereby a researcher gathers data from individuals possessing identified characteristics (Crotty, 1998).

This research used opportunity purposive in the consumer questionnaires; where the research -targeted members who follow different famous people on social media and who were looking to buy a home; they were given the chance to participate through social media. However, in

the professional questionnaire purposive sampling was used, where a professional group sample was selected, such as employees in real estate office, construction and design, government sector responsible for housing and real estate development companies. Quota sampling was also used with the professionals, and the data were gathered from individuals possessing identified characteristics.

4.5.1.3 Questionnaire Strategy

In research, it is important to gather information from the subjects or respondents. Questionnaire responses could be influenced by respondents' bio-demographic information (Pallant, 2005). A badly ordered and designed questionnaire is not going to provide good data for what the researcher is looking to achieve from the research questions. Most questionnaires can be split into two types of question: closed or open-ended. Closed-ended questions are used in this research, where it involves offering respondents a number of defined response choices. They are asked to mark their responses using a tick, cross, circle, etc. The choices may be a simple Yes/No, Male/Female, or may involve a range of different choices. Closed questions are usually quite easy to convert to the numerical format required for SPSS (Pallant, 2005).

When preparing the questionnaire, it is important to consider how the information is going to be used; it is also important to know which kind of statistics are going to be used, depending on the statistical technique, so that the questions can be asked in the right way (Pallant, 2005). Figure 4.10 shows the steps from the beginning of the survey; the questionnaire was designed after counting and gathering all the variables from different studies and research. In Saudi Arabia, because of cultural differences, there are some specific points on which Saudis focus, so the survey tried to cover them. The questionnaire in this study has been designed using a Likert scale for the financial factor (strongly agree to strongly disagree) and for the rest of the factors (most preferred to least preferred).

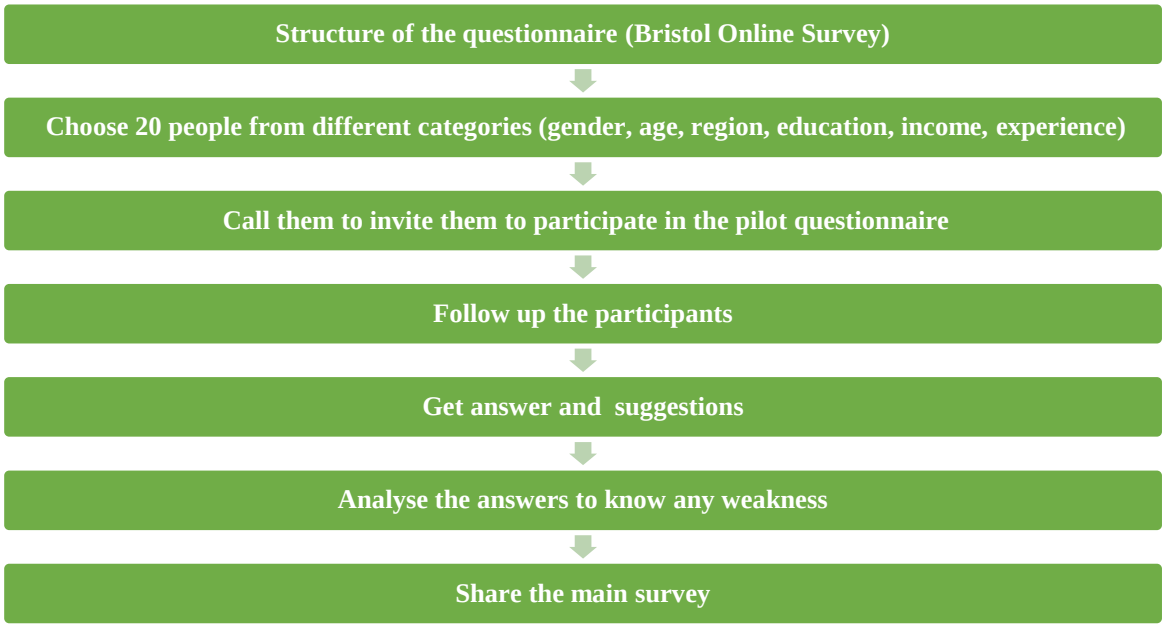

Figure 4-11 The strategy of the questionnaire (Self-study)

After designing the questionnaire using Bristol Online Survey, the second stage entailed choosing 20 different people to participate in the pilot test. The third stage was calling them and getting their acceptation to be involved in the study; after that, the participants were followed up and suggestions were gathered from them about the study before the final survey was finalised and shared.

The Pilot Survey

Pilot tests are used to assess how the sampled respondents from the target population will respond to the questionnaire. A pilot test should be carried out well in advance of the actual survey (Kumar, 2005). It is particularly valuable to facilitate researchers to make substantial improvements to the questionnaire and gain more effective results. It is recommended that the questionnaires be tested before use to make sure that respondents comprehend them and interpret them in the same way as the researchers expect. Piloting of the questionnaire takes place to check that respondents do not take too long to complete the questionnaire during the actual data collection process, as well as to obtain useful data from the respondents. The pilot of the consumer questionnaire was distributed to 12 participants from different ages and levels

of education. The pilot of the professional questionnaire was distributed to eight professionals (Engineers-Architect-Developers). From these 20 people, there were 16 questionnaires returned and completed. This is an 80% response rate, which indicated that the survey could be rolled out. There were some amendments made based on the pilot questionnaire, to develop the final questionnaire to provide a high response rate. Editing some of the questions, and adding more options was the main amendment, in addition to explaining some of the questions. Moreover, the pilot study showed that the questionnaires take between 5 to 15 minutes to complete.

4.5.1.4 Using Social Media to Collect Data

Currently, social media has become a way to find friends and collect information; moreover, social media is increasingly influential in the world (Luchman, et al., 2014). The term 'social media' has been used in a number of contexts referring to a number of different technologies and what those technologies can accomplish. Social media typically refers to internet-based applications that allow for the development of user-generated information and provide a forum for users to interact with each other (O'Leary, 2011). Social media may take information from a one-to-one environment and disclose it to larger numbers of people. Social media generally works to remove asymmetries of information, by making more information broadly available to the public (O'Leary, 2011). Although social media typically refers to information generated by people, ultimately it could refer to information generated by systems for people, people for systems or systems for systems (O'Leary, 2011).

The number of people who use social media has increased in the past 10 years, with the introduction of new apps such as Facebook, Twitter, and YouTube. The main growth in using social media has been in the young age group. In 2013, 89% of young people aged 18–29 in the USA reported using social networking sites; this was 78% for 30–49 year olds; on the other hand, only 43% of adults over the age of 65 reported social media use (Luchman, et al., 2014).

By 2013, the number of social media users in Saudi Arabia had greatly increased from 2012; the amount of people who used Facebook via their phone had increased by 150% and this was 30% for LinkedIn users. In Saudi Arabia, 93% of internet users are on Facebook and 8.4 million users use Facebook on their mobile. Twitter users in Saudi keep breaking records; they are at the top of Twitter user penetration per internet capita (The Social Clinic, 2013). Saudi Arabia's Twitter usage rates are the highest of any country across the globe relative to online population (GlobalWebIndex, 2013). About 41% of internet users in the country are active on Twitter, which has experienced massive growth in Saudi: the number of active Twitter users in the Kingdom in 2013 was 4.8 million, compared with about 1,000 in 2011 (Plotkin Boghardt, 2013). In 2014, there were 9.2 million active social media accounts (Figure 4.12), with WhatsApp, Twitter, and Facebook having more than 61% of the users in Saudi Arabia (Figure 4.13). However, 25-34 years is the leading demographic for use of social media – the age group increasingly leading adoption of social network apps (GlobalWebIndex. 2013). Ages 18-35 dominate the social network locally with more than 83% penetration (The Social Clinic, 2014). Saudi universities and Saudi-based organisations have started joining social media, because the number of tweets by Saudis has grown by 300% since 2012, which shows how important Twitter has become, even for the government (The Social Clinic, 2013).

The digital activity in Saudi Arabia originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Global Web Index. (2015). Digital, Social and Mobile in 2015. http://www.slideshare.net/wearesocialsg/digital-social-mobile-in-2015.

Figure 4-12 Digital activity in Saudi Arabia (GlobalWebIndex, 2015)

The top active social media platforms originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Global Web Index. (2015). Digital, Social and Mobile in 2015. http://www.slideshare.net/wearesocialsg/digital-social-mobile-in-2015.

Figure 4-13 Top active social media platforms (GlobalWebIndex, 2015)

4.5.1.5 Scholarly Communication via Social Media

After the arrival of the web, the method of scholarly communication changed. Because of the web, studying has been made easier, colleagues can quickly have discussions over email or video conferencing tools, and articles can be published on the web in institutional repositories (Huberman et al., 2009). Nowadays, it looks like social media is further changing the method of scholarly communication (Huberman et al., 2009), because researchers are using social media, which allows them to find new research areas, talk with colleagues and expand their research information. It has been shown that scholars use Twitter to cite scientific articles and hence Twitter could potentially be used to measure scholarly impact (Priem et al., 2010). To the detriment of traditional methods, there is increasing use of online qualitative research methodologies within social media (GreenBook Research Industry Trends Report, 2012). Social media has become important for discovering and sharing research. Researchers are looking to understand how social media can enhance their practice, while simultaneously maintaining the key characteristics of quality research. Some think it may have an impact on tenure and promotion processes at academic institutions (Gruzd et al., 2011), and it gives these

institutions the opportunity to share knowledge and ideas, which makes it easier to reach consumers and stakeholders (Landers et al., 2014).

This suggested an idea to this researcher: to conduct part of the questionnaire using social media, which people now regard as one of the three key means of achieving educational experience, where it is used for speed in finding answers to brief questions, because consumers check their apps regularly to look at links (Hrastinski et al., 2011). Measuring the awareness of the public about the existence of social media platforms as well as their awareness of services consists of four main levels: awareness; engagement, which evaluates the interaction of the public through their social media use; action, which evaluates actions taken by the public as a result of interaction with a study through their social media platforms; and impact, which evaluates the impact of social media on the public. The questionnaires were based on these levels to assess consumers' experiences, views and expectations: (1) awareness; (2) engagement; (3) action; and (4) impact (Al Khyeli et al., 2015).

4.5.1.6 Benefits of Using Social Media

Social media has become the best platform to link consumers to each other; consumers prefer it, and hence organisations, governments and researchers need to engage with the public through this media channel to be able to make more informed decisions (Al Khyeli et al., 2015). Social media has been utilised for a long time in marketing, advertising, and public relations, especially where it has become the platform of choice for communication between organisations and the public (Pak and Paroubek, 2010; Denef et al., 2011; Van den Born et al., 2013). It provides a chance to understand consumers, and build decisions, offering a wide scope to gather information. This goal could be achieved by building a model based on principles' measurement (Ketchum, 2012). This could be a way to gather the views and opinions of consumers on different topics by using social media, which is interesting for the researcher, because 'live' views are provided by the users (Agarwal et al., 2011). Sharing knowledge via

social media is unobtrusive for the consumer because it is easy and a kind of entertainment (Mondahl et al., 2014). It has become normal, easy and simple for everyone to, 'think by writing' , and 'seek others', where social media has now become a place to give your thoughts and for people to discuss them with you (Mondahl et al., 2014).

There are a lot of benefits to be gained by using social media in education, although some of them have not been realised yet. It is important in supporting the exchange of brief questions and answers, collecting information, and retrieving information from external sources (Hrastinski et al., 2011). For example, it is clear that students perceive that use of social media provides distinctly different benefits for teaching than traditional methods (Figure.4.14).

The face-to-face, LMS and social media dimensions of the educational experience originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Stefan Hrastinski and Naghmeh M. Aghaee. (2011). How are campus students using social media to support their studies? An explorative interview study. Education and Information

Figure 4-14 Face-to-face, LMS and social media dimensions of the educational experience (Hrastinski et al., 2011)

4.5.1.7 Reasons for Social Media Success

However, there are multiple reasons for this growing success, for example, asynchronous respondents, where people want to take part when it is convenient for them, which may differ from person to person (Rolland et al., 2013). Thus, online exchanges free people from the constraints of time and place (Cova et al., 2002). Resorting to social media has certain effects on the composition of online participant groups, such as avoiding travel costs, taking less time, including multiple types of different people, and diversification of sources of recruitment

(Rolland et al., 2013). Social media merges a great number of people and groups that can be close to the subject of the study, especially on Facebook, and this assists in the recruitment of people who are interested in the study (Rolland et al., 2013). It is not to be expected that all consumers would be able to participate in an online study, whether for cultural or economic reasons. However, social media allows researchers to gather enough participants to measure, especially if they use different data collection methods (Vicente et al., 2012).

4.5.1.8 Social Media Apps

Facebook has a broad base of capabilities, for example, it allows the user to define 'friends' who are allowed to view material that the user has posted. Friends can post comments on the user's wall. Social media often lets users supply tags to help describe material available in different knowledge repositories, including pictures or documents (Oleary, 2011). Sharing the survey on Facebook was beneficial for this study: I posted it on Facebook and I asked friends to share it.

Twitter is a micro-blogging tool, where users can send messages of 140 characters or less. Users can also send pictures and videos through Twitpic and other sources. Rather than merely using social networking services for entertainment, some people have started to use them to find practical information, according to Morris et al.'s (2010) study; more than 50% of this study's respondents said they used sites like Facebook and Twitter to obtain useful information. The power of social networks appears to be in their ability to provide answers to questions; also, the sites are used like search engines to gather opinion and ask for recommendations (Morris et al., 2010). Moreover, with regard to response time, obtaining a timely response requires entering an optimal query (Hsieh, et al., 2009). Additionally, people tend to trust the opinions of people they know and follow rather than the opinions of strangers (Morris et al., 2010). People who use Twitter are likely to follow a high number of corporate and celebrity

accounts, and it is normal for people on Twitter to be following more people than they have followers (Huberman et al., 2009).

However, hashtags and the type of hashtag used have an effect on 'retweet ability', and the number of followers a person has is influential. With more followers, the user's tweets may be retweeted more often (Figure 4.15). People who use social media retweet for different reasons. It could be to spread information to new audiences or a specific audience of followers, or they want to make the original writer aware that they are reading their tweets, to publicly agree with or to validate someone's thoughts, but it is also carried out for egoistic reasons such as to gain more followers or to gain reciprocity (Boyd et al., 2010). As retweeting could be a good way for my survey to reach different people, I started to share it on Twitter using famous people in different fields in Saudi (Table 4.9). The idea behind using famous people on social media to share the questionnaire was to reach a large number of people who were following them, and famous people were selected who had different jobs, backgrounds and ages. This variety led to a multitude of popular people sharing it more, tweeting and retweeting the survey link, which led to a high number of respondents from different regions, level of education and ages.

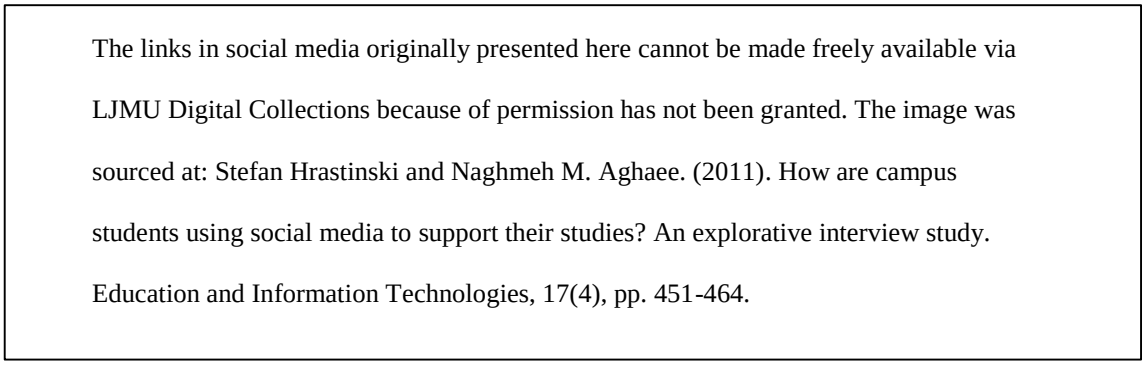

Figure 4-15 Links in social media (Huberman et al., 2009)

Table 4-9 The people who shared the survey link on Twitter

Number of Followers	Field	Age
2.4 m	Journalist, Al-Arabiya channel director	42
128,000	Lawyer, Writer	29
637,000	Economic, Columnist	36
11,000	Employee in Saudi Credit and Savings Bank	31
12,000	Photographer	28
6500	Accounting, private sector employee	24

4.5.2 Qualitative Data (Interview – Focus Group)

Grounded Theory Style Approach

Grounded theory is defined as an overall explanation of phenomena in a particular discipline or realm of experience, developed through a combination of induction and deduction, where information is collected from people's experiences before conclusions are drawn (Saunders et al, 2009). At this time, most people equate qualitative research with grounded theory. Empirical statements are made by using the knowledge gained from the data (Johnson et al., 2000), by looking at a particular situation and trying to understand what happened (Kervin et al., 2006). The theory is generated from the data collection in the study; it does not come from other sources.

A grounded theory strategy is helpful for researchers to predict and know consumer behaviour; however, it can also be used to explore a wide range of issues (Goulding, 2002). To conduct the grounded theory research question when there is a limitation theory regarding the process, the recruitment where participant interest about the process and involves or ex-involves in the problem. The way of collection data in the grounded theory is interviews and focus group. Where the questions need to address by the following; core phenomenon, causal condition, strategy and consequences where it led to good solid theory. The disaggregation of data called open coding, to identify the relationships between categories to axial coding, and the integration of categories to produce a theory is labelled selective coding.

4.5.2.1 Interviews

The interview is introduced as a direct method of contact with the interviewer, which aims to provide satisfaction in the conversation itself and offer the interviewee a comfortable space in which to speak (Chisnall, 1992). In addition, it is explained by some writers, such as Ackroyd and Hughes (1992), as a meeting between a researcher and a respondent, which needs preparation for a series of questions that are relevant to the subject of the research.

4.5.2.1.1 Interview Design

There are different types of interview, which include informal and conversational interview, general interview approach, standardised and open-ended interview, and closed and fixed response interview (Kothari, 2004). In an informal and conversational interview, there are no predetermined questions prepared; the interview remains adaptable and open to the interviewee's responses. The general interview approach aims to ensure that the same areas of information are gathered from every interviewee. This approach provides more focus and still allows some adaptability and freedom.

The standardised and open-ended interview means that similar open-ended queries are asked to every interviewee. The closed and fixed response interview is where all interviewees are asked a similar set of questions and required to choose answers from a set of alternatives. The interview is normally recorded by the researcher in order to analyse it later on with different programs such as NVivo, and to compare and process results regarding study aims and objectives. In the interviews, the researcher has the main power, and the quality of the results depends on the researcher's management of the interview sessions and the level of communication. Chisnall (1992) believes that better results could be achieved through fulfilment of the following tasks in an interview:

1. Allocate and contact respondents who fulfil the research objectives.

2. Translate this contact into an effective interview.

3. Questions asked should be carefully worded and presented to the respondent.

4. Secure valid and reliable answers to the objectives of the research.

The main reason for conducting the interviews is to discuss the consumer questionnaire and the survey. For the purposes of this study, the general interview approach provides more focus and still allows some adaptability and freedom and the gathering of more information, where it give the interviewee the chance to describe their knowledge.

4.5.2.1.2 Interview Sample

Interviews need people, places and times; in order to improve the response rates, invitations need to be personalised, and benefits could also be offered (Creswell, 2013). Researchers in qualitative research select their participants according to their characteristics and knowledge. In addition, the researcher chooses people or sites that provide specific knowledge about the topic of the study (Creswell, 2013).

Different types of sampling are available for interviews, such as:

1- Maximal Variation Sampling 2- Typical Sampling 3- Theory or Concept Sampling

4- Homogeneous Sampling 5- Critical Sampling 6- Opportunistic Sampling 7- Snowball Sampling.

The third stage of the methodology in this study comprises interviews, where there was much contact with professional people – engineers, developers and official people who work in the government. Theories and concepts were used to choose a homogeneous sample of professionals from a variety of backgrounds to provide the required knowledge, and an unbiased result.

4.5.2.1.3 Interviews participants

The participants in the interviews: there was contact with professional people – engineers, developers and official people who work in the government. The main reason for the interview

was to discuss the consumer questionnaire and the survey results with these people before creating the model. The participants were chosen according to their characteristics and knowledge of the topic, and to have mixed backgrounds, and they were expected to be open minded to speak about the subject. Moreover, three interviews were conducted; the interviewees were:

- Participant (A), a civil engineer who owns a construction and design company; he has worked in the field for more than 25 years.
- Participant (B), a designer and official worker at the Ministry of Housing; he is the manager at the Ministry of Housing project in Medina.
- Participant (C), a real estate developer and investor; he is in a partnership with a capable real estate company and is a land investor.

The Analysis Approach in the Interviews

After listening to all the recordings, translating them from Arabic to English and manually writing up the transcripts, step one was reading the transcripts in different ways, starting with scanning through them all, as a whole, then adding notes about the main effects, and then reading them again, very carefully. Step two involved identifying participants' important points by labelling the relevant words, phrases, sentences, or sections. Labels can relate to concepts, differences, and opinions, about anything relevant. Normally, the way to decide if something is relevant to be coded is to find out if it is repeated a number of different times; to consider whether it has opened your eyes to a new thing; that the participant has said it is important; or that it reminds you of a theory or a concept. Step three is to decide which codes are the most important, and to start categorising by conducting the codes, start creating new codes by combining two or more codes, reduce the codes and remove some of them, keeping the important ones, and then group them together to create a new theme. Step four is to label categories and choose which are the most important and describe how they are linked together.

Step five involves drawing a figure to summarise the results, whilst in step six the results are written up.

4.5.2.2 Focus Group

The focus group is defined as a "carefully planned series of discussions to obtain perceptions on a defined area of interest in a permissive, non-threatening environment" (Franz, 2011). Focus groups promote a discussion of a specific topic by means of group interaction. Focus group research is very popular in academic research, as evidenced by the three-fold increase in the number of focus group studies in academic journals over recent years (Kitzinger et al., 1999). Focus groups have a long history, for example, they were used in World War II to establish how people felt about wartime propaganda (Franz, 2011). From that time, focus groups have been used in different studies, such as marketing, decision-making, product development, consumer satisfaction, design goals, policy planning, needs measurement, and as a research method to record and collect information to know how people see or think about any cases, product, or services (Krueger et al., 1988).

Social science researchers have found that focus groups give them a significant place to share studies, where people brainstorm together, which offers a chance to provide strong information and solutions in some cases. These discussion groups allow for plenty of discussion between participants, who comment to each other about the truth of what has been said according to their experience (Linville et al. 2003). Qualitative data collection is an extremely popular research and consultation method that uses a face-to-face discussion of a particular topic. This allows the researcher to obtain participants' reactions in order to identify the strengths and the weaknesses of the concept. Statistical model validation is an important stage in the model-building step since it enables the researcher to have trust in the deduction result (Ekstrøm, 2013). Focus groups are used in this research as part of the methodology, along with other research methods, because this allows the researcher to collect major pieces of information in

a short period and listen ‘live’ to those who have different perspectives. Moreover, researchers can acquire “believable results at a reasonable cost” (Krueger, 1988; Linville et al., 2003).

4.5.2.2.1 Focus Group Design

To understand participant’ opinions on a specific subject, researchers use focus groups. The open conversation has a snowballing effect on group discussion, and often results in rich ideas. Focus groups are usually active where the participants could enjoy this kind of experience (Piercy, et al., 2011). These group interviews enable the participants to understand and find out their individual opinion, to reach a group consensus (Nurse, 2015). One of the big advantages of the focus group is that it actively enriches the conversation and provides a consensus between the participants (Nurse, 2015). The target of the focus group is to dive into the subject. It is a research method that has emerged from group interviews that, where it is used in the give an indicators, to the data that will be analysed by the researcher (Nurse, 2015).

This allows the researcher to obtain participants’ reactions in order to identify the strengths and the weaknesses of the concept. The focus group will be the last stage in order to gain consumers and professionals’ opinions for input into the consumer preferences model. The most agreed criteria which distinguish a focus group from other types of group interview are: focus groups are more formal, they have a specific focus which is set by the research, and the moderator – often the researcher – has a distinctive role (Khan and Manderson, 1992). It is important to give the focus group members enough time to continue with an answer, and probing can be used to gather more information and additionally verify their answers (Kvale, 2007). In terms of quality control in a focus group, Krueger (1993) offers 10 factors: (1) clarity of purpose, (2) appropriate environment, (3) sufficient resources, (4) appropriate participants, (5) a skilful moderator, (6) effective questions, (7) careful data handling, (8) systematic and verifiable analysis, (9) appropriate presentation, and (10) honour the participants. This research applied these factors in order to gain high-quality data; however, for the purposes of this study, an

informal and conversational focus group, there were no predetermined questions prepared; the interview remains adaptable and open to the focus group respondents to obtain effective answers.

4.5.2.2.2 Focus Group Sample

The focus group is a primary step in model development to validate implementation of a model for the designed aim and measure how strong and effective the model results are. It shows how far the model covers the home variables in Saudi. Moreover, it should indicate the model's extent of fact and its constraints (Kubicek, et al., 2015). The word validation consists of two different parts: (a) it shows how the outcomes are linked to a previous hypothesis and (b) it constitutes the final stage to make sure of the rightness and suitability of a model before it is used to meet the research's aim and objectives. Most of the rules of the validation approaches in ecological modelling have been designed to describe common aspects required to maintain the emphasis on quality (Kubicek, et al., 2015).

Step 1 - Definition of participants: The first initiative was to define the profile of the focus group participants. There were seven participants in this study, four consumers and three professionals (Nurse, 2015). Sometimes the groups have to be small enough for everyone to feel comfortable in sharing their opinions, to gain a variety of views (Krueger, 1988). In addition, there could be multiple focus groups on one topic, in order to protect the privacy of people and groups and to have participants who can give better information and ideas that have not yet been explored (Krueger, 1988).

Step 2 - Contact members: The participants were contacted by telephone. They were told about the focus group, and given its the aim and objectives, and offered the opportunity to take part in the study.

Step 3 - Provide the time and date for the focus group: After contact with all participants and receiving confirmation of their desire to participate, they were informed about the date, time,

and location, given the rules of the focus group, and also reminded about the group, in order to encourage their presence.

Step 4 - Preparation of a guiding script: To conduct the focus group, the researcher set up the questions with links to the research ideas. According to (Whyte, (1982), it is normally better to begin with questions that the participant can easily answer, and then move to more difficult ones. The focus group leader is the moderator, and needs to care about the participants, as the aim of the study is to understand the participants' beliefs, and what they find important and interesting (Soklaridis, 2009). A list of important points about the topic was devised before the focus groups were conducted, and each focus group started with questions and then the answers were gone through in detail. Generally, the participants made similar points during the focus groups. At the end of each focus group, the participants were asked if there was anything they wanted to add (Soklaridis, 2009).

Step 5 - Environmental preparation: Preparation took place before the meeting, such as arranging the location, room preparation (lighting, ventilation, upholstered chairs, snacks, water and coffee), advance selection and preparation of specific materials, and environmental organisation.

4.5.2.2.3 The Focus Group Participants

The model validation in this research used the focus group method, comprising consumers and professionals in several focus groups. Four consumers and three different professionals –: architect, planner and developer –, were included. The main reason for the interview was to discuss the consumer models for housing to validate the models. The participants were chosen according to their characteristics and knowledge of the topic, and had a mixture of backgrounds. Normal consumers and professionals were included to cover the different kinds of participant, and both males and females were included (Table 4.10), to find out more about the suitability of the models. The main question for each focus group was: what are the key

elements that you look for when you want to buy a home? Moreover, the conversation flowed with discussion of the question, as the first question when a consumer wants to buy a house is 'What are the key elements?', which starts with looking for something that might be missing or looking for comfort. Some of the respondents stated that location is the important part when they start looking for a home; also, the internal design of the building and comfort in the design, whether the design respects their needs. The consumers thought that elements of the comfort factor had changed in the last 10 years. All of them agreed that their budget affects their preferences and limits their choice, even in the location or internal and external design.

Table 4-10 The participant information in the FG

Participant	Function	Age
One	Consumer/Female	48
Two	Consumer/Male	22
Three	Consumer/Female	26
Four	Consumer/Male	32
Five	Architect	24
Six	Developer	31
Seven	Engineering Planner	30

The Analysis Approach in the Focus Group

As this comprises qualitative data, is the analysis started by translating the recordings from Arabic to English and then the transcripts of the recordings were written up manually, and the reports were read and the important words, phrases, sentences, or sections were labelled. Moreover, codes and categories were allocated, and then the codes were linked in order to write and summarise the results, and describe the categories and how they are connected with the research models.

4.6 Summary of the Chapter

This chapter has addressed the research philosophy important to the study and how it views the world. This research is positioned along this continuum with objectivism, where an objective reality can be addressed through the knowledge of positivism and realism. Moreover this study uses the abduction approach, where the theory is different to the reality. With regard to the methodology, this chapter has explained the mixed methods approach chosen to be applied in the study, by gathering data sequentially, by conducting quantitative questionnaires and then qualitative interviews, with final validation by focus groups. Moreover, to gather all of this data, ethical approval was requested from the University's Research Support Committee.

In addition, this chapter has looked at the design of the questionnaire, which took place after identifying the variables, which is an important stage before designing the survey, which this study established in the literature review. Likert scale measurement has been used because it gives discrete instead of continuous values and tied numbers. However, there are four kinds of measurement rating, nominal, ordinal, interval and ratio, and the questionnaires in this study were designed using the first three of these. After being designed, the surveys were tested by conducting a pilot survey before publishing the main questionnaires. There were 20 people in the pilot study, with 16 questionnaires returned. In the qualitative data collection, there was use of a grounded theory style approach. Interviews were applied in this study as the third stage after the questionnaires; they were conducted with professional people – engineers, developers and official people who work in the government – using open-ended questions, to gather the knowledge and give the participants space to speak. The participants were chosen according to their characteristics and knowledge of the topic, and in the hope that they would be open minded when speaking about the subject.

As a final stage, validation of the models took place, where focus groups were utilised in this study, with different participants, consumers and professionals; the discussions were opened

up to give the participants a chance to offer their opinions. Seven participants were chosen, both consumers and professionals, and males and females, in order to cover the different kinds of participant. With regard to the qualitative data analysis, it was started by translating the recordings from Arabic to English and then manually writing up the transcript of the recording, and then reading the report and starting to label important words, phrases, sentences, or sections. Moreover, to the data were coded and categorised, then the codes were linked to write, the results were summarised, and the categories and how they connected with the research models were identified.

Chapter 5: Data Collection and Analysis Approach

Chapter 5: Data Collection and Analysis Approach

5.1 Introduction

This study collected data through two surveys conducted in the major cities of Saudi Arabia using social media. The questionnaires addressed several housing-related issues, including respondents' current housing tenure, type of housing, satisfaction with current residence, housing preferences, and importance of housing factors. Respondents also provided socio-demographic information. This chapter discusses the questionnaire data collection and analysis approach.

5.2 The Questionnaire Results

The consumer questionnaire link was shared on social media (Twitter – WhatsApp – Facebook – Path), and there were 1131 views and 752 of these responded and completed the survey; however, the link to the professional questionnaire was shared directly with people (by Email – Twitter – WhatsApp), and there were 106 views; 101 of these responded and completed the survey.

5.2.1 The Reliability and Normality of the Data in the Consumer Questionnaire

Finding the Cronbach's alpha coefficient is important to locate the internal consistency of the measurement scale in the questionnaire, which rates the importance of the variables (from 1 = important to 5 = not important). *Checking the reliability statistics:* in terms of reliability, the most important figure is the Alpha value. This is Cronbach's alpha coefficient, which in this case is .896; this value is above .7, which indicates that our sample is reliable (Field, 2013).

Checking the mean of the data: the 56 factor criteria identified via literature review differ in terms of their relative importance to housing preferences. In a statistical way, Table 5.1 presents

the findings of all 56 variables in the questionnaires. The average weighted mean and Kolmogorov-Smirnov for each housing preference calculated by SPSS are shown in this table. The Kolmogorov-Smirnov test is used to check the normality of the distribution of scores. The test compares the scores in a given sample to a theoretically normally distributed set of scores with the same mean and standard deviation (Field, 2009). In the test, if the result has a significant value of <0.05 that means the distribution of the sample is significantly different from a normal distribution. However, if the result has a non-significant value of >0.05 this mean the results are normally distributed, to choose the reforming test in SPSS. Table 5.2 below shows that the KS Sig. for all the variables is .000; that means the data is nonparametric, where non-parametric tests must be used for analysis.

Table 5-1 The mean and the normality of the data

The variables	Mean	KS test the Sig.
Increase prices FF1	1.36	.000
Financial risk FF2	2.12	.000
Pay cash FF3	2.87	.000
Solution: purchase homes FF4	2.40	.000
The high interest FF5	2.15	.000
Mortgages offered FF6	4.04	.000
Home values with quality FF7	4.27	.000
Land price FF8	1.45	.000
Construction cost FF9	1.75	.000
Developed by individuals FF10	1.86	.000
Building own home FF11	1.71	.000
Easy to open a real estate construction office FF12	2.13	.000
Housing delivered FF13	3.61	.000
Regulation FF14	2.61	.000
Modifications after buying FF15	1.64	.000
Sharing house FF16	2.66	.000
Ministry of Housing work FF17	3.61	.000
Political situation in Saudi FF18	2.75	.000
Closeness to family LF1	2.14	.000
Quality of the neighbourhood LF2	1.48	.000
Safety of the neighbourhood LF3	1.30	.000
Cleanliness of the neighbourhood LF4	1.47	.000
Closeness to school LF5	1.94	.000
Services in the neighbourhood LF6	1.98	.000
Near to public transport LF7	2.56	.000
Accessibility of location LF8	1.67	.000
Street width LF9	2.18	.000
Name of district LF10	2.25	.000
Design of district LF11	2.17	.000
Fresh air in location LF12	1.61	.000
Soil of land LF13	1.59	.000
Aesthetics EXF1	1.87	.000
Finishing EXF2	1.48	.000
Garden EXF3	2.21	.000
Lot size EXF4	1.81	.000
Building size EXF5	1.88	.000
Bigger home even if it is far from a city EXF6	2.52	.000
Number of parking spaces EXF7	2.40	.000
Number of building storeys EXF8	2.21	.000
Functionality INF1	1.49	.000
Modern design INF2	2.13	.000
Privacy INF3	1.66	.000
Number of bedrooms INF4	1.82	.000
Number of bathrooms INF5	1.87	.000
Space for family INF6	1.77	.000
Visitors' space INF7	2.39	.000
Storage room INF8	1.94	.000
Facility room INF9	2.21	.000
Size of windows INF10	2.38	.000
Natural light INF11	1.68	.000
Quality of the building SPF1	1.20	.000
Age of the building SPF2	1.53	.000
The environmentally friendly nature of the buildingSPF3	2.13	.000
Materials used in the building SPF4	1.41	.000
Insulation SPF5	1.54	.000
Cold and hot system SPF6	1.46	.000
	116.32	

This figure shows that the significance level for the variables is $p<0.05$, meaning that they are significantly different from a normal distribution

5.2.2 The Reliability and Normality of the Data in the Professional Questionnaire

In this case the Cronbach's alpha coefficient is .788; this value is above .7, which indicates that our sample is reliable (Field, 2013). The 56 factor criteria identified via the literature review

differ in terms of their relative importance to housing preferences. Table 5.2 displays the mean score obtained for each criterion and its corresponding weight. In the table, the results of this test using SPSS show the data in the professional questionnaire are non-parametric.

Table 5-2 The mean and the normality of the data

The variables	Mean	KS test the Sig.
Increase prices FF1	2.01	.000
Financial risk FF2	2.46	.000
Pay cash FF3	2.63	.000
Solution purchase homes FF4	2.25	.000
The high interest FF5	3.08	.000
Mortgages offered FF6	3.44	.000
Home values with quality FF7	3.11	.000
Land price FF8	1.68	.000
Construction cost FF9	2.79	.000
Developed by individuals FF10	2.35	.000
Building own home FF11	3.47	.000
Easy to open a real estate construction office FF12	2.58	.000
Housing delivered FF13	3.01	.000
Regulation FF14	2.30	.000
Modifications after buying FF15	2.44	.000
Sharing house FF16	2.70	.000
Ministry of Housing work FF17	3.92	.000
Political situation in Saudi FF18	2.09	.000
Closeness to family LF1	1.92	.000
Quality of the neighbourhood LF2	2.44	.000
Safety of the neighbourhood LF3	2.47	.000
Cleanliness of the neighbourhood LF4	2.65	.000
Closeness to school LF5	2.92	.000
Service in the neighbourhood LF6	1.80	.000
Near to public transport LF7	3.96	.000
Accessibility of location LF8	2.59	.000
Street width LF9	2.56	.000
Name of district LF10	2.69	.000
Design of district LF11	2.97	.000
Fresh air in location LF12	3.47	.000
Soil of land LF13	3.58	.000
Aesthetics EXF1	1.77	.000
Finishing EXF2	2.15	.000
Garden EXF3	3.54	.000
Lot size EXF4	2.26	.000
Building size EXF5	2.83	.000
Bigger home even if it is far from a city EXF6	3.36	.000
Number of parking spaces EXF7	3.92	.000
Number of building storeys EXF8	3.01	.000
Functionality INF1	1.79	.000
Modern design INF2	2.25	.000
Privacy INF3	2.41	.000
Number of bedrooms INF4	2.22	.000
Number of bathrooms INF5	2.78	.000
Space for family INF6	2.76	.000
Visitors' space INF7	2.38	.000
Storage room INF8	3.18	.000
Facility room INF9	2.80	.000
Size of windows INF10	3.78	.000
Natural light INF11	3.62	.000
Quality of the building SPF1	1.81	.000
Age of the building SPF2	2.22	.000
The environmentally friendly nature of the buildingSPF3	3.65	.000
Materials used in the building SPF4	2.79	.000
Insulation SPF5	3.22	.000
Cold and hot system SPF6	3.58	.000
	154.41	

This figure shows that the significance level for the variables is $p<0.05$, meaning that they are significantly different from a normal distribution

5.3 Analysis Software

SPSS is a software package that is utilised for statistical data analysis. SPSS is used in analysing quantitative data after the data collection, in which various tests will be carried out. After collecting all the data, they are transferred to the SPSS program to extract the relevant statistical data. Questionnaire data are the main sources for the analysis and development of the model. SPSS is a tool for ad-hoc analysis, hypothesis testing, and predictive analytics. Moreover, it is used to understand data, analyse trends, forecast and plan, validate assumptions and drive accurate conclusions.

5.3.1 Exploring the Differences Between the Groups in the Questionnaires

The main goal of the data analysis to explore the differences within the group answers regarding the housing preferences. The hypotheses below are based on the desire to explore the differences in the participants' answers:

- *Do the answers for housing preferences differ depending on the consumers' gender?*
- *Do the answers for housing preferences differ depending on the region where the respondents live?*
- *Do the answers for housing preferences differ depending on the professional respondent's type of employment (e.g. Real estate office/Construction and design/Government/Real estate Development Company)?*

There are two different types of statistical technique, parametric and non-parametric; the word parametric comes from parameter, or characteristic of a population. The tests for that, for example, t-tests and ANOVA, provide assumptions about the population of the sample. They often give assumptions about the population distribution, such as whether it is normally distributed (Pallant, 2005). The non-parametric techniques do not make assumptions about the underlying population distribution. Non-parametric techniques are ideal for use when the

researcher has data measured on nominal (categorical) and ordinal (ranked) scales where SPSS provides a wide variety of non-parametric techniques (Field, 2013).

Non-Parametric Data

Furthermore, to answer the research questions, it is important to identify the right test. As the data in this research are non-parametric, SPSS software is used because it offers different choices for non-parametric tests. Table 5.3 shows the different kinds of test applied for non-parametric data. Mann-Whitney Test, Kruskal-Wallis Test and Factor Analysis Test can be performed in SPSS. In deciding the most appropriate test to use, it is essential for the researcher to consider the kind of variables available (Jamieson 2001); that is, whether the variables are interval, ordinal or categorical, as well as whether they are evenly distributed.

Table 5-3 Summary table of the characteristics of the non-parametric statistical techniques

The summary table of the characteristics of the non-parametric statistical techniques originally presented here cannot be made freely available via LJMU Digital Collections because of permission has not been granted. The image was sourced at: Pallant, J. (2011). SPSS Survival Manual: A step by step guide to data analysis using SPSS (4th ed.). England: McGraw-Hill Education.

Source: Pallant (2005)

Table 5.4 shows which methods and test will apply in this study for the consumer and professional respondents, where two methods are used to gain the data from the consumers: questionnaire and focus group; however, three methods are used with the professions: questionnaire, interviews and focus group. Moreover, statistical tests will be applied to develop models that show their opinions.

Table 5-4 Methods and tests in the study

Name	Questionnaire	Interviews	Mann-Whitney Test	Kruskal-Wallis Test	Factor Analysis	Models	Focus group
Consumers	✓	-	✓	✓	✓	✓	✓
Professionals	✓	✓	-	✓	✓	✓	✓

5.3.1.1 Mann-Whitney U Test

The Mann-Whitney Test in SPSS refers to a non-parametric analogue for the independent variables, and is utilised when the researcher does not presume that dependent variables are normally distributed interval variables. That is, the researcher only supposes that the dependent variables are at least ordinal. It is a non-parametric test alternative to the t-test for independent samples. Instead of comparing the means of the two groups, as is the case with the t-test, the Mann-Whitney U Test actually compares medians. It transforms the scores of continuous variable to ranks between the two groups. Moreover, it evaluates if the ranks for the groups are significantly different (Pallant, 2005). Although the non-parametric tests are not that powerful compared with parametric tests, the Mann-Whitney test is nevertheless the most useful test to apply in order to accurately test the consumer data in this research (Pallant, 2005).

5.3.1.2 Kruskal-Wallis Test

The Kruskal-Wallis Test in SPSS is utilised when a researcher has only one independent variable with more than two levels, as well as an ordinal dependent variable. This means that Kruskal-Wallis Test is a non-parametric version of ANOVA, as well as a generalised kind of

Mann-Whitney Test in the sense that it permits analysis of more than two groups. The Kruskal-Wallis test in SPSS refers to a kind of exploratory multivariate analysis used to reduce the amount of variables in a particular model, as well as to detect correlations among variables, where, in the analysis between groups, each group contains different people. If the significance level (Asymp) value is less than .05, then it can be concluded that there is a statistically significant difference in the variable across the groups.

In this study, inferential statistics analysis is used to define the significance of the home preference factors. It is important to calculate the score of the mean for each variable as this then allows the weighting of each variable to detect the correlations. The mean turns out to be more representative of low standard deviation, where high standard deviation means that there is a difference between scores. The scores were gained by using a scale of importance ranging from 1 to 5, where 1 = 'important' home preferences and 5 = 'not important' home preferences. These were arranged in overall rank order of importance (determined by mean scores).

5.3.1.3 Factor Analysis

This part of the study identifies and ranks the indicators of consumer preferences according to their level of significance, based on consumers' views. The purpose of using the factor analysis method is to reduce data and to remove redundant (not highly correlated) variables from the survey and attempt to establish factors that underlie the variables (Holden et al., 2004), where it is an inductive approach to identify the variables. Factor analysis is used in data reduction to identify a small number of factors that explain most of the variance observed in a much larger number of manifest variables. Factor analysis can be useful when researchers are testing an hypothesis and screening for constructs within a group of variables (Bartholomew and Knott, 1999). In addition, it is a technique for decreasing a large number of factors into an easily understood framework; however, it looks for clusters that are related to each other (Norusis, 2000). Factor analysis in SPSS uses the principal components to extract components and

variables that are latent. However, the components are groups of matrices that show the correlations within different variables. This process begins by finding a linear combination of variables that present a great deal of variation from the original variables. In addition, it discovers another component that presents much of the remaining variation and is not linked with another component. This process continues until it shows many components as much as main variables. Normally, a small number of components will have a high number of variations, where each component replaces a main variable (SPSS, 2003). Factor analysis starts by determining the power of the connection with the variables (Shen and Liu, 2003). A matrix of correlation coefficients is taken first, then components with an eigenvalue of bigger than 1. After that, the rotated component matrix is used to define which indicators have more influence in the component. In this stage, selecting the most influential factors will be delegated to the study using factor analysis.

Assumptions in Factor Analysis

1. Sample size: Ideally, the overall sample size is around 100; there should be a ratio of at least five cases for each of the variables.

2. Factorability of the varimax correlation matrix: To be considered suitable for factor analysis the correlation matrix should show at least some correlations of r=.3 or greater. Varimax is used to maximise the dispersion of loading within factors. Therefore, it tries to load a smaller number of variables highly on each factor, resulting in more interpretable clusters of factors. Varimax is a good general approach that simplifies the interpretation of factors.

Reliability in Factor Analysis

When checking the reliability statistics, in terms of reliability the most important figure is the Alpha value, where the value needs to be above .7.

The Kaiser-Meyer-Olkin Value in Factor Analysis

The Bartlett's test of sphericity should be statistically significant at $p<.05$ and the Kaiser-Meyer-Olkin value should be .6 or above. The KMO can be calculated for individual and multiple variables and represents the ratio of the squared correlation between variables to the squared partial correlation between variables.

The Scree Plot

It is used to show the eigenvalues linked with a component or factor in sloping order against the other components or factors, where the scree plots is used to show analysis of the components and factors by visually presenting components that explain most of the variability in the data.

5.4 Summary of the Chapter

This chapter has discussed the data collection and analysis approach used in the research, where quantitative data (questionnaires) were collected using an online questionnaire, because it is a popular and important method of collecting statistical data. Moreover, social media was used in this research to collect the data, because it is commonly used in Saudi, for example, Twitter usage rates are the highest of any country across the globe relative to online population. In addition, this chapter shows the response rate to the questionnaires, where the consumer questionnaire had 1131 viewers and 752 people responded and completed the survey, and the professional questionnaire had 106 viewers, with 101 people responding and completing it. Moreover, this chapter shows the normality of the data, which is a non-parametric result for both questionnaires, which led to specification tests such as Kruskal-Wallis Test and Mann-Whitney U Test. In addition, this chapter has addressed the factor analysis test, which is for regrouping the variables, which will be used in this study to prepare the final model.

Chapter 6: Data Analysis for the Consumer Model

Chapter 6: Data Analysis for the Consumer Model

6.1 Introduction

This chapter provides the data analysis in order to develop the consumer model for housing preferences, starting with the consumers' questionnaire, by checking the reliability, the mean and then the normality of the data. Finding the mean provides the starting place for the descriptive statistics for all the factors, Financial, Location, External design, Interior design and Home specification details. This chapter will then look at the statistics test, to find out the correlations between the variables; after that, the Mann-Whitney U Test will be used to compare the variables; also, Kruskal-Wallis Test will be used to compare more than two variables. The final stage in this chapter is the Factor Analysis, which is a method by which to regroup the variables to build up models, by getting new components to group the variables. Conducting research with a large sample size of a population leads to results that reflect the preferences of the assumed population. In this study, a questionnaire was designed and distributed to a number of consumers.

6.2 Consumer Questionnaire Demographic Finding

Table 6.1 shows ***the gender of the respondents***, 479 males and 273 females. In a paper by Opoku (2010), he mentions that it is not easy to get females to respond to a questionnaire because of cultural issues; he obtained just 13%, but the percentage obtained in this study is 36.3%, and that is one of the benefits of social media.

Table 6-1 Gender profile of survey respondents

Gender	Percentage
M	63.7
F	36.3

With regard to the age of the respondents, Table 6.2 shows ***the variety of ages***: 46.6% were under 31 years old, which is normal when we know that 61% of Saudis are aged between 15 and 26 (JEF, 2013). They will have different kinds of preferences from the previous generation.

Table 6-2 Age of survey respondents

Ages	Percentage
-20	5.2
21-30	41.4
31-40	35.5
41-50	10.5
+50	7.4

The result for ***the marital situation*** is that about 58.2% of our respondents are married and 36.4% are single. Coupled with the accelerated population growth, Saudi Arabia's lack of affordable housing and lack of jobs for the youth are complicating social norms because many young citizens are unable to marry and set up homes (Opoku, et al., 2013).

Table 6.3 shows the ***number of dependents each respondent*** has; the result shows that 16.6% care for more than five people. Although the number of Saudi family members has decreased in the last 20 years (Bahammam, 2001), traditionally the Saudi family is big, and it is normal in Saudi culture to have a house cleaner and a driver, which leads to the householder having more dependents.

Table 6-3 Number of dependents

Dependents	Percentage
0	31.9
1	10.1
2	9.2
3	12.2
4	10.9
5	9.0
+5	16.6

Table 6.4 shows ***the monthly income***; the result shows that 67.8% of respondents earn less than SR12,500 (£2100). This result was expected as many Saudis work in public administration

jobs, education, health and public utilities, under the umbrella of the public sector, where they earn less than SR8000 a month (about £1300) (Alrajhi Bank Capital, 2013; SAMBA, 2010). Moreover, this figure clarifies that no children answered the questionnaire, as all the respondents have a minimum income of SR3000; thus and consumers who are under 20 in Table 6.2 are not children.

Table 6-4 Monthly income of survey respondents

Monthly income (SR)	Percentage
3000-7000	37.1
7500-12500	30.7
13,000-20,000	22.6
+21,000	9.6

The results also show the percentage of people who ***migrated from villages to megacities***, which was about 20.2%; this is one of the reasons for overcrowding in big cities. Figure 6.1 shows that most of the respondents are from three regions where the majority of people have migrated to (Riyadh – Makkah – Eastern Province) (Bank Saudi Fransi, 2011); because of this, 77.8% of the respondents are from those three areas.

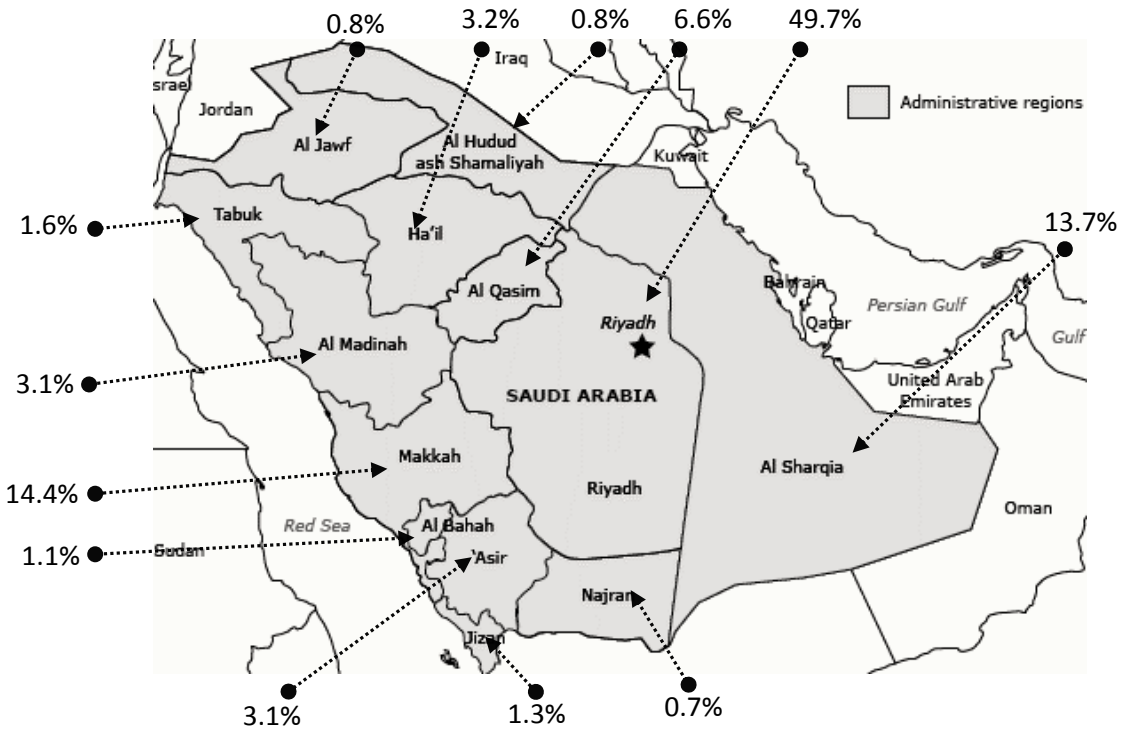

Figure 6-1 Survey respondents obtained from different regions in Saudi Arabia: Consumers

Table 6.5 shows the type of dwelling that ***the respondents live in now***: 50.4% live in a flat, and 39% live in a detached house. That shows how the culture has changed in Saudi, as in the past most Saudis did not like to live in multi-storey buildings, leaving them for the foreigners in the country.

Table 6-5 Where the survey respondents currently live

Kind of homes	Percentage
Flat	50.4
Semi-Detached House	10.6
Detached House	39.0

An important question concerned ***the percentage of people who own their home***: 45.7% of the respondents answered that they own their home and 54.3% stated that they are renting. From Table 6.6, it can be seen that about 54.4% of respondents answered that they live with their family, and 40.8% said they are living independently.

Table 6-6 With whom the survey respondents are currently living

currently living	Percentage
Independently	40.8 **%**
Family	54.4 **%**
Friend	4.8 **%**

Another main question concerned the home preferences in the study: ***what is the factor the respondents think is most important*** (Price – Location – Interior Design – External Design); which is the main factor that affects homebuyers?

It is clear from Table 6.7 that the price is the most important factor for consumers in Saudi Arabia, which is quite reasonable given the high increase in home and land prices in the last five years. Interior design and location come second and third respectively, where people are looking at and thinking about home design and functionality, followed by the location of the home. The external design, the face of the building, comes last.

Table 6-7 Home preferences of the survey respondents

Home preferences	Percentage
Price	45.2
Location	26.5
Interior Design	27.1
External Design	1.2
Total	100.0

6.3 Consumer Questionnaire Descriptive Analysis Finding

6.3.1 Financial Factor

The questionnaire study starts with the financial factor; the descriptive statistics (Figure 6.2) show which variables in the financial factor the respondents agreed with more than the others, by showing the number of responses. First comes the increase of prices in the housing market, as it affects the Saudi citizens financially (FF1); this is to be expected, especially when looking at the percentage of home owners in Saudi, which is about 30% (Century21, 2013). Then the increase in land prices is also one of the main reasons for the housing problem (FF8), as land prices have greatly increased in the last few years (Riyadh news, 2013). The lowest two financial factors are: the mortgages offered by the government and banks meet citizens' needs and preferences (FF6), where the government loan is SR500,000 (£80,000), which is only 30% of the average house price (Alrajhi Bank Capital, 2013); and whether the present house values are compatible with their quality (FF7). Consumers think that the quality is not very good, and in the interview with participant (A), he said that the quality of homes is affected by a lack of professionals working in construction, which leads to low-quality homes appearing on the market.

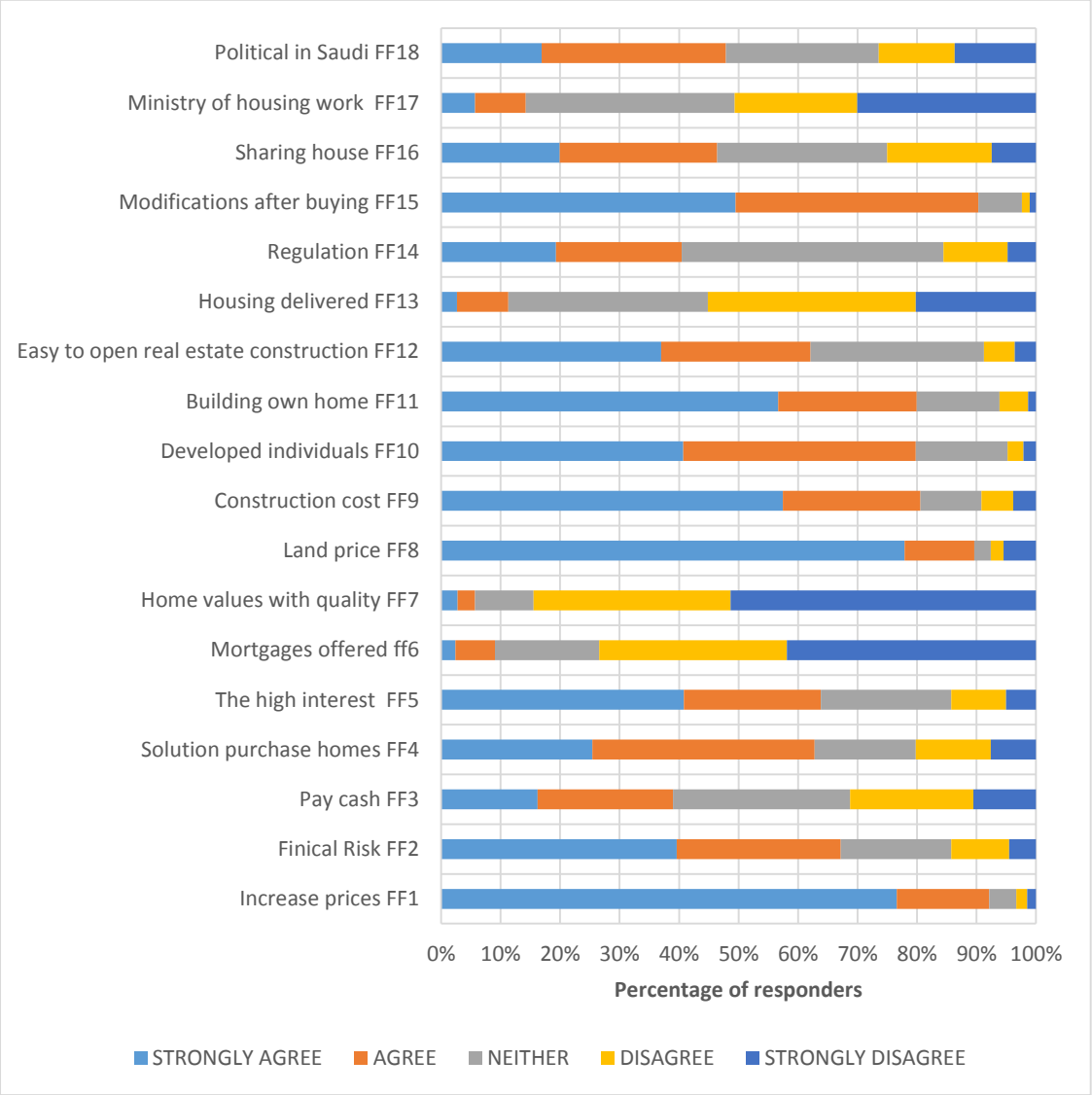

Figure 6-2 Comparison of descriptive statistics in the financial factor

The increase of real estate prices in Saudi Arabia in the last few years has brought about some changes in the society; in the questionnaire, the section about the financial factors and the price effects starts with: does the increase in prices in the housing market affect Saudi citizens financially? About 76.6% strongly agreed with that and 15.6% agreed; that means that 92.2% of the respondents think the increase in the price affects them. In addition, they were asked if they thought purchasing or building a property in a climate of increased prices is a financial risk. About 39.6% strongly agreed that it is risky and 27.5% agreed, which means in total 67.1% of the respondents think it is risky to purchase or build a property in such conditions.

Paying cash is one of the common ways to buy property in Saudi; in the questionnaire about 16.2% of the respondents strongly agreed with paying cash and about 22.7% agreed. However, 29.8% of respondents did not indicate a preference. With regard to real estate, mortgages could be the solution for those who do not have the cash to purchase homes; about 25.4% strongly agreed with the mortgages solution and 37.4% agreed. In total, 62.8% of respondents accepted mortgages as a solution. With regard to the variable that high interest applied to mortgages is the reason for the lack of home mortgages, about 40.8% strongly agreed that there is high interest and 23% agreed. In total, 63.8% of respondents think the interest is high and affects people taking on mortgages.

Looking at whether the mortgages that are offered by the government and banks meet citizens' needs and preferences, about 41.9% strongly disagreed and 31% disagreed. In total, 72.9% of respondents think that the mortgages offered by the government and banks do not fit their preferences. When asked whether the current values of homes are compatible with their quality, about 51.3% strongly disagreed and 33.1% disagreed. In total, 84.4% of respondents think the house values are not compatible with their quality; that becomes clear when we know the average age for a building in Saudi less is than 40 years because of the quality (Ministry of Housing, 2013).

Concerning the increase of land price as one of the reasons for the housing problem, about 77.9% strongly agreed with this and 11.7% agreed. In total, 89.6% of respondents think the increase of land price is one of the reasons for the housing problem. When asked if the construction cost is one of the reasons for the housing problem, about 57.4% strongly agreed and 23.1% agreed. In total, 80.5% of respondents think the construction cost is one of the reasons for the housing problem. However, when Participant (A), was interviewed and asked whether the construction costs in Saudi are high, he said “No, the cost is less than average but the price of land is high”.

When asked about whether developing a home in Saudi is mostly done by individuals, about 40.7% strongly agreed and 39.1% agreed. In total, 79.8% of respondents think the individuals are the main developer. When considering whether it is better to build your own home than buy it from a real estate developer, about 56.6% strongly agreed and 23.3% agreed. In total, 79.9% of respondents think building your own home is better than buying it from a real estate developer.

When asked whether the quality of housing development in Saudi has been negatively affected because it is easy to establish a small estate and construction office, about 37% strongly agreed and 25.1% agreed. In total, 62.1% of respondents think that small companies affect quality. In addition, when asked if the housing that is delivered to the real estate market suits citizens' preferences, about 35% strongly disagreed and 20.2% disagreed. In total, 55.2% of respondents think what is delivered to the real estate market is not suitable for them.

When considering if the government regulations on designing and building a home affects the developers ability to meet the consumer preferences, about 44% disagreed about the impact of government regulations. When reflecting on making modifications in homes after moving in, about 49.5% strongly agreed and 40.8% agreed that homebuyers did this. In total, 90.3% of respondents think people still make modifications in their homes after moving in. Thinking about whether there is currently a tendency to go back to the extended family style of living, sharing the same house, about 19.9% strongly agreed and 26.5% agreed. In total, 46.4% of respondents think people are going back to the extended family style of living, sharing the same house.

Considering whether the Ministry of Housing work completed since 2011 has made a significant impact on the housing market, about 30.1% strongly disagreed and 20.6% disagreed. In total, 50.7% of respondents felt that the work the Ministry of Housing has completed since 2011 has not made a significant impact on the housing market. The change in

the Ministry's strategy from delivering homes to delivering land with infrastructures has resulted in people having less belief in the Ministry. Thinking about whether the political situation in Saudi is stable and encouraging for house purchasing, about 16.9% strongly agreed and 31% agreed. In total, 47.9% of respondents think the political situation in Saudi is stable and encouraging for house purchasing.

6.3.2 Location Factor

The second part of the consumer questionnaire was the location preferences. The descriptive statistics (Figure 6.3) show the location factor variables that respondents most preferred from 1 most important to 5 less important, by looking at the number of responses to each question. The safety (LF3) of the location is the most preferred variable, where feeling safe at home is important for residents (Jabareen, 2005). Next comes cleanliness (LF4), which reflects the neighbourhood quality (Al-Momani, 2003). The next two preferences are the name of the district (LF10) and the class of people who live there; finally, how near the location is to public transport (LF7) is bottom, which reflects the lack of public transport in Saudi Arabia, where cars are the main form of transport.

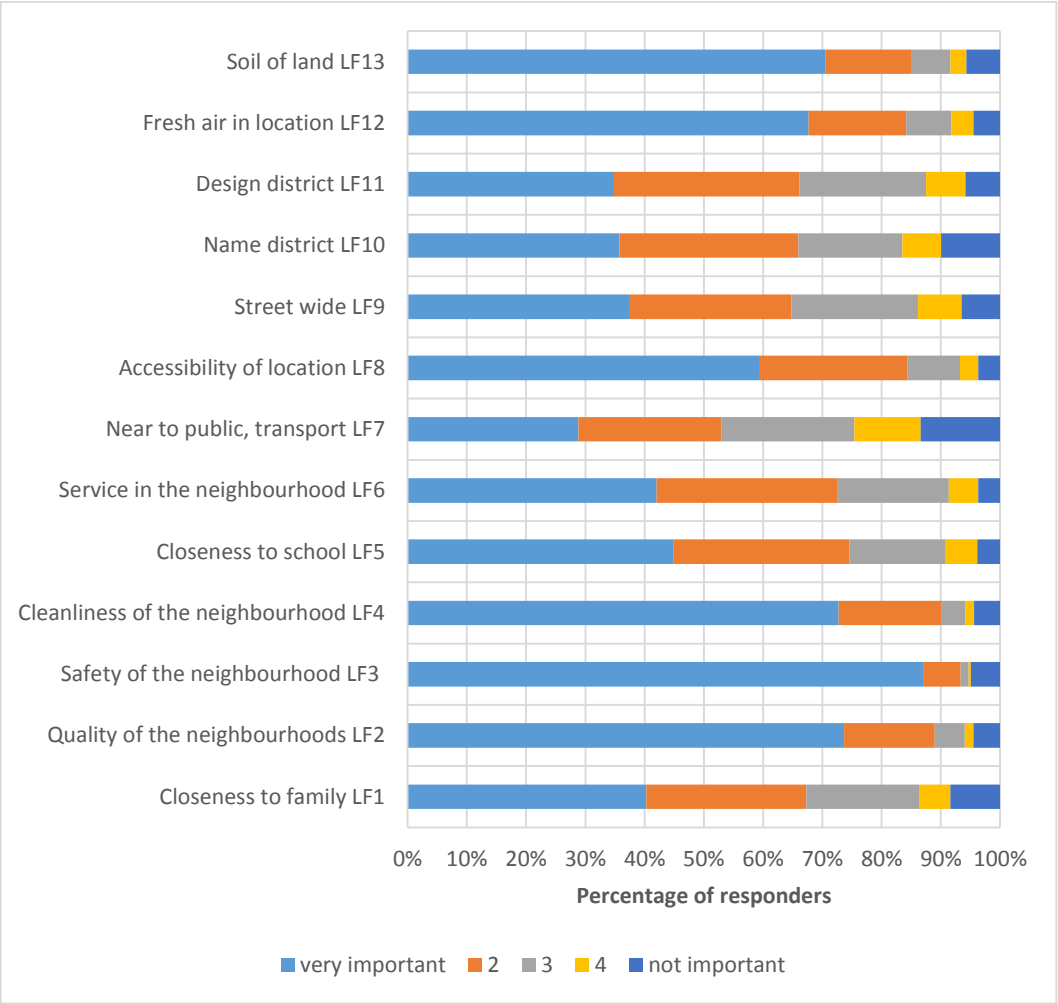

Figure 6-3 Comparison of descriptive statistics in the location factor

6.3.3 External Design Factor

The third part in the consumer questionnaire was the external design preferences. The descriptive statistics (Figure 6.4) show the variables respondents found most important, from 1 to 5, by looking at the number of responses to each question. In this factor, the type and quality of finishing, such as painting and flooring (EXF2), which could affect the homebuyer's choice (Vedia DoÈkmeci, 2000), is the most important variable, and after that comes the large lot size (EXF4): people prefer a bigger size even if there is no need for it (Opoku et al., 2010). The lowest two factors are the number of parking spaces (EXF7), as it is beneficial for some homes to have at least one (Matías Fontenla, 2009), and then how important it is that the home

is bigger, even if it is far from a city (EXF6), where the suburbs are not preferred because of the lack of services (Bahammam, 2001).

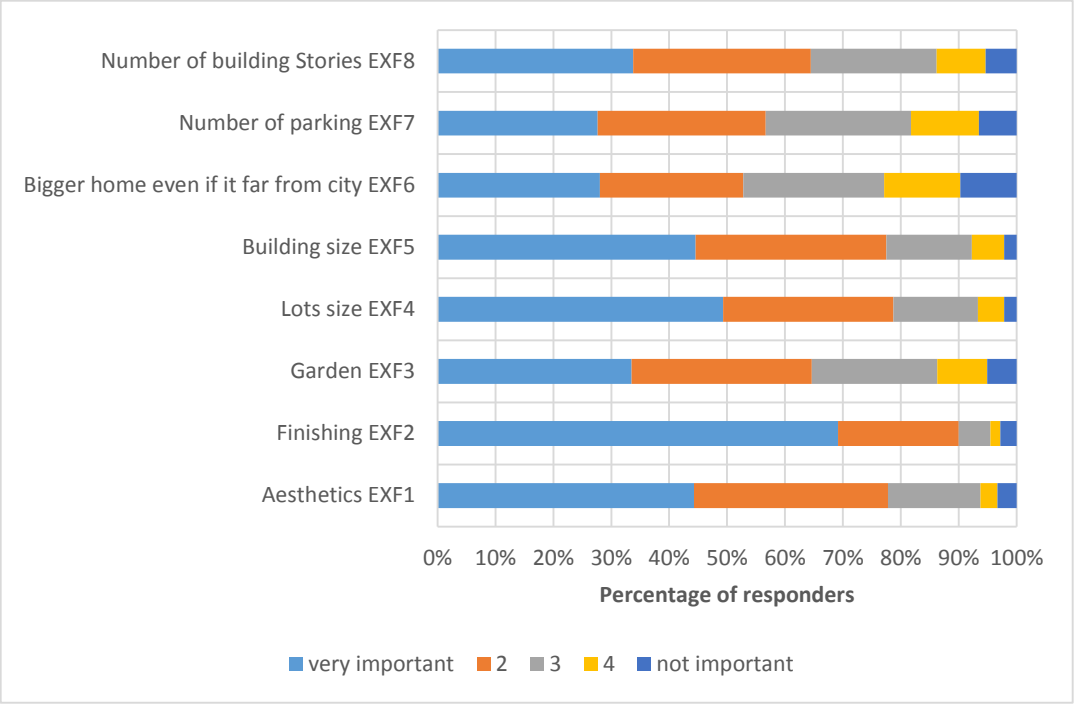

Figure 6-4 Comparison of descriptive statistics in the external design factor

6.3.4 Interior Design Factor

The fourth part of the consumer questionnaire was the interior design preferences. The descriptive statistics (Figure 6.5) show the variables respondents found most important, from 1 to 5, by looking at the number of responses to each question. The functionality and spaciousness (INF1) of the design is the most important variable, as homes need to be fitted with certain requirements and utilisation of the space is important (Al-Otaibi, 2004). After that comes privacy (INF3) from neighbours and visitors, which is a cultural issue in the Middle East (Gibler et al., 2014). The lowest two are size of the windows (INF10), where the hot weather could be the reason for the lack of importance of this factor, and, finally, larger space for the visitors' room (INF7), where the low score seems to indicate a big change in Saudi culture.

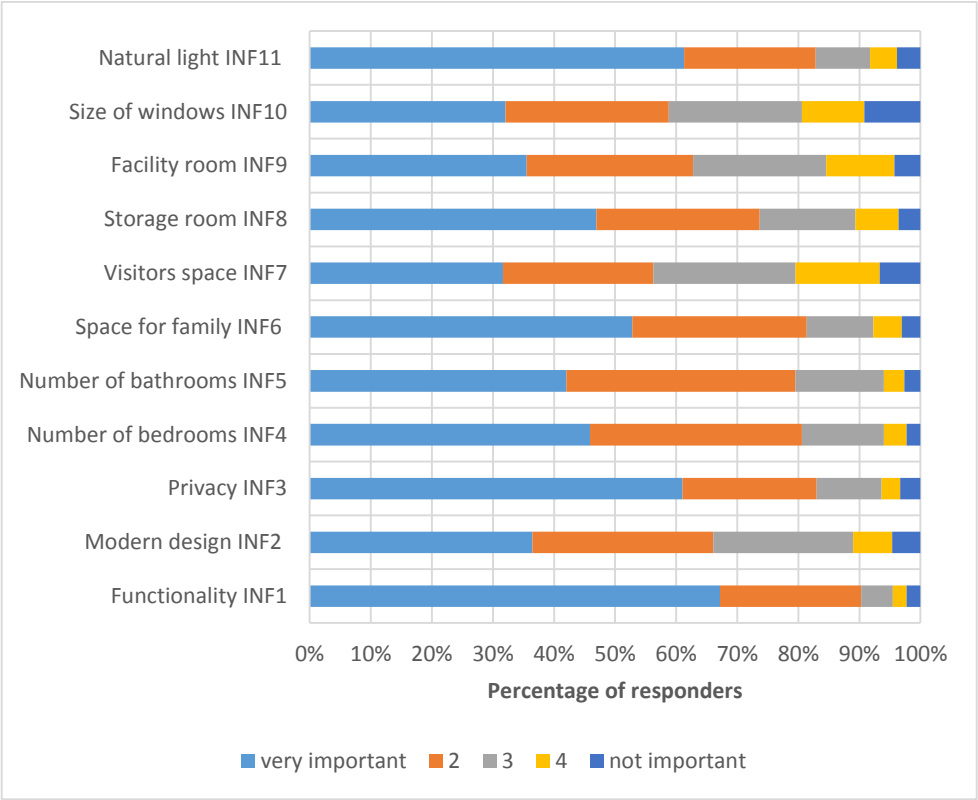

Figure 6-5 Comparison of descriptive statistics in the interior design factor

In the interior design factor, the questionnaire asked some more questions about the preferred house size, the size and number of bedrooms, the kitchen size and the living room size. With regard to the house size, in Table 6.8, it is clear that most of the respondents (43%) prefer a house size of between 500 m and 700 m, whereas only 2.7% think 150 m to 200 m is enough. This percentage is expected, as people normally want bigger houses; also, culturally, in Saudi Arabia a bigger home means bigger benefits and is regarded as a kind of investment.

Table 6-8 House size

Sizes	Percentage
150-200	2.7
250-300	10.5
350-450	36.8
500-700	43.0
+700	7.0

With regard to the size of bedrooms (Table 6.9), it is clear that most of the respondents (37.5%) prefer it to be 4*5 m, whereas only 2.3% think 3*3 m is enough. In addition, participants want bigger homes, as it is common in Saudi for people to think that having a bigger space is better because it may be useful in the future (participant A, interview).

Table 6-9 Size of bedrooms

Sizes	Percentage
3*3	2.3
3*4	9.6
4*4	24.1
4*5	37.5
5*5	20.3
+5*5	6.3

Looking at the number of bedrooms (Table 6.10), it is clear that most of the respondents (35.2%) prefer to have five bedrooms, whereas only 0.1% think one and two bedrooms are enough, which is an obvious result when looking at the number of members in the average Saudi family, which is six, according to the Central Department Of Statistics and Information (CDSI, 2013).

Table 6-10 Number of bedrooms

Number	Percentage
1	.1
2	.1
3	5.1
4	28.5
5	35.2
+5	31.0

When thinking about the size of the kitchen (Table 6.11), it is clear that most of the respondents (46.8%) prefer it to be 5*5m, whereas only 0.9 % think 3*3m is enough. It is common to have a storage room and a housemaid's room, and some people use part of the kitchen as a dining room.

Table 6-11 Size of kitchen

Sizes	Percentage
3*3	.9
3*4	5.7
4*4	15.8
4*5	30.7
5*5	46.8

By looking at the result for the size of the living room (Table 6.12), it is clear that most of the respondents (33.5%) prefer it to be 5*5m, whereas only 1.3 % think 3*3m is enough. As the living room in Saudi has become the women visitors' space, this could be the reason why respondents prefer a bigger size.

Table 6-12 Size of living room

Sizes	Percentage
3*3	1.3
3*4	2.4
4*4	11.0
4*5	22.9
5*5	33.5
+5*5	28.9

6.3.5 Home Specification Details Factor

The final part of the consumer questionnaire was the home specification details preferences. The descriptive statistics (Figure 6.6) show which variables the respondents found most important, from 1 to 5, by looking at the number of responses to each question. The quality of the building (SDF1) is the most important variable. This can be explained by the high price of property, which causes citizens to start looking at the quality in depth, which is one of the requirements for a bank mortgage (Eng. Alajme). However, the kind of materials used in the building (SDF4) comes second, which is linked to quality. Insulation of the building comes fifth (SDF5); it is now a government requirement to insulate a home, which reduces the energy bill by 30% (MOMRA, 2015). The lowest preference is for the environmentally friendly

building (SDF3), which is expected, because there is a lack of information about the benefits provided to the housing stakeholders in Saudi (Bahammam, 2001).

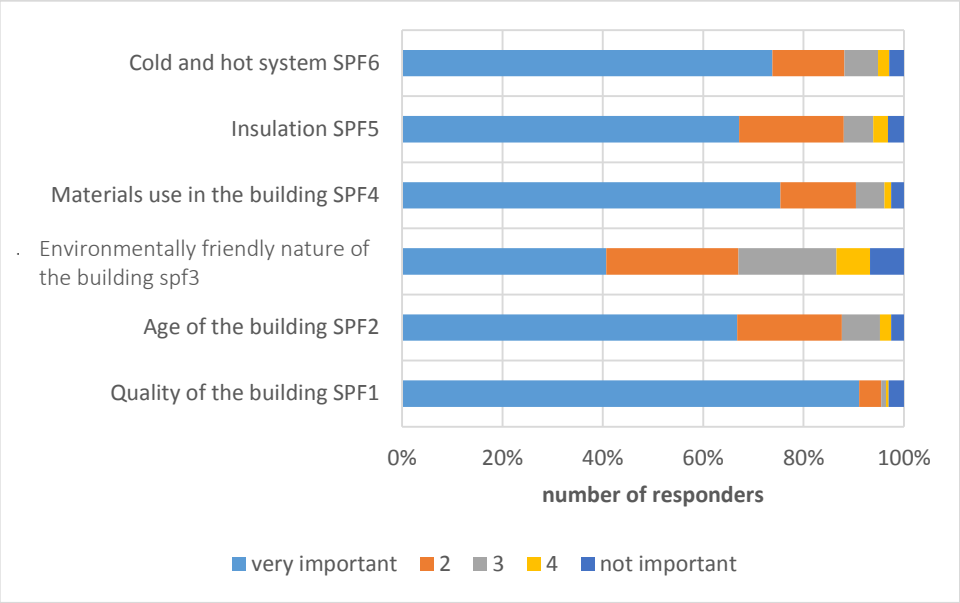

Figure 6-6 Comparison of descriptive statistics in the home specification details factor

6.4 Consumer Questionnaire Inferential Analysis

6.4.1 Mann-Whitney U Test

To identify if there are any differences between the genders of the respondents in relation to the preference scores, it will be advantageous to look at the differences in responses and gender of respondents using the Mann-Whitney test. Figure 6.7 shows that 64% of respondents were male and 36% were female. As a cultural issue, identifying the home preferences of Saudi women is difficult, and some previous studies about home preferences had response rates of no more than 18%. However, the Saudi women's home preferences could affect the homebuyers (who are usually men) (Opoku et al. 2010); so it is advantageous for the study to recognise the differences between the genders. Therefore, this part addresses the research question: does the result for housing preferences differ depending on the consumers' gender (male or female)?

There is a use of one categorical variable with two groups (male and female), and one continuous variable (all the home preference variables).

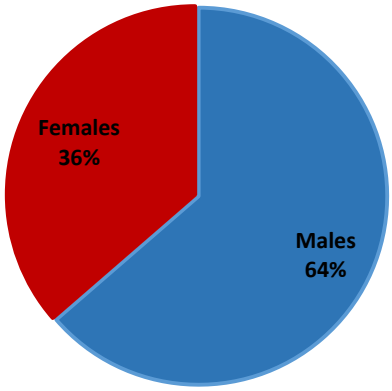

Figure 6-7 Gender of survey respondents

Table 6.13 shows if there is any difference between males and females with regard to their home preferences. In a community such as Saudi Arabia the culture has a big effect on people's lives, where the majority of females are not in the workforce, and the man is counted as the only source of income in the household (Opoku et al, 2010). However, men and women are equally important during different stages of the housing purchase process, even if the man is the main buyer of the home, and it is his responsibility from a cultural and religious perspective. This led to the test results showing a difference in financial variables, such as the increased prices of homes, the financial risk of buying a home at these high prices, the high percentage of interest charged on loans, building your own home, and it being easy to open a real estate construction office which is normally a man's job). Furthermore, it means that it is a man's responsibility, whilst women do not see the problem from the same perspective.

The results were as follows:

- The significance level of p=0.00 for the increase of prices in the housing market affects the Saudi citizens financially (FF1).

- P=0.008 for purchasing or building a property with the increased prices is a financial risk (FF2).
- P=0.000 for high interest applied on mortgages is the reason for the lack of home mortgages (FF5).
- P=0.000 for building your own home is better than buying a home from a real estate developer (FF11).
- P=0.014 for it is easy to open real estate and construction offices, which affects the quality of the build (FF12).

There is a statistically significant difference in the location preference, where females score differently than men in two variables: the width of the street, which is linked to home value and effect of the prices, which is the reason for the different views; and the name of the district, as a highly renowned district could be something for people to brag about The results were as follows:

- P=0.003 for the width of the street (LF9).
- P=0.00 for the name of the district (LF10).

However, in the external design factor, females gave a different ranking than males in one variable, which is the width and number of parking spaces, which is to be expected when we now that women in Saudi Arabia are not allowed to drive, which may affect their views about the need for parking spaces.

- P=0.001 for the width and number of parking spaces (EXF7).

Finally, with regard to the internal design preference, there is a statistically significant difference in three variables: house size, kitchen size and the number of bedrooms, which is a fair representation of reality because housewives look at the home space differently. There were no differences found for gender in relation to the interior layout, private living space,

aesthetics and exterior space. The house size p=0.003, kitchen size p=0.006 and the number of bedrooms p=0.001.

Table 6-13 Home preferences values ranked by gender

Gender	Variables	ASYMP Sig.
Females gave different	Increase prices FF1	0.000
	Financial risk FF2	0.008
	The high interest FF5	0.000
	Building own home FF11	0.000
	Easy to open a real estate construction office FF12	0.014
	Street width LF9	0.003
	Name of district LF10	0.000
	Number of parking spaces EXF7	0.001
	House size	0.033
	Room number	0.001
	Kitchen size	0.006

If probability value (ASYMP Sig) is not less than or equal to .05, the result will not be significant; there will be no statistically significant difference.

6.4.2 Kruskal-Wallis Test

- **Consumer Home Preferences Based on the Respondent's Region**

To identify whether the region where a respondent lives makes any difference to his/her scoring of important preferences, consumers were assigned to one of 13 regions, and the Kruskal-Wallis Test was used to test for any differences.

In a big country such as Saudi Arabia, which is about 2.2 million km and has a population of around 30 million (cdsi.gov.sa. 2013), and different cultures, the home preferences could also be different. In this study, inferential analysis was used to define the significance of the home preference factors. It is important to calculate the score of the mean for each variable as this then allows the weighting for each variable to detect the correlations by determining the mean scores, with a higher rank showing the most important home preference variables for all the groups together and for each group alone, in order to carry out the Kruskal-Wallis Test.

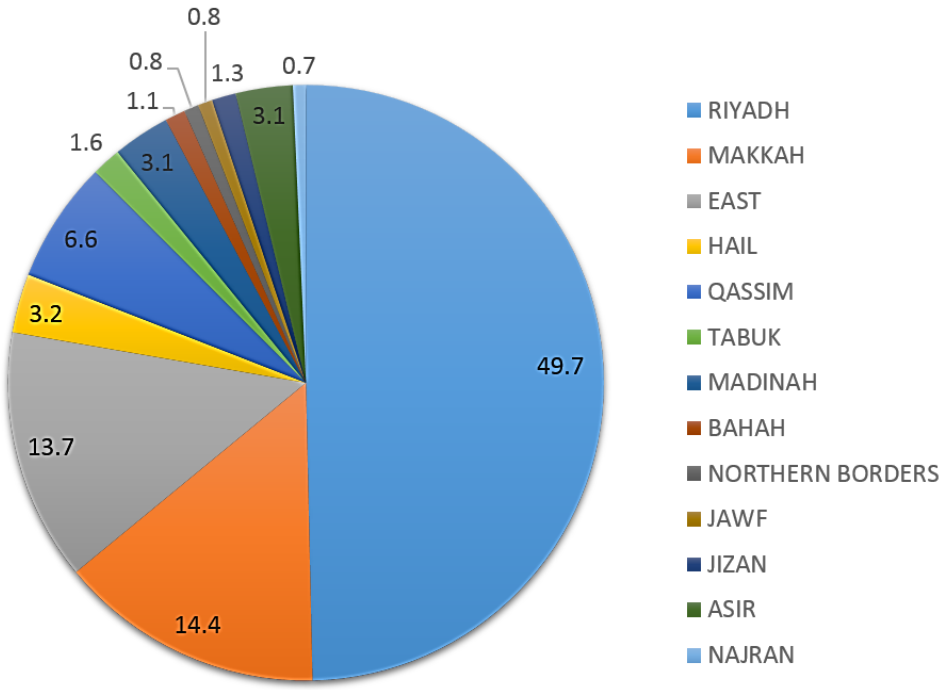

Figure 6-8 The responses broken into percentages for the 13 regions

The research question here was: is there a difference in all the consumer preference factors, location, external design, internal design and the home specification details, between all 13 regions in Saudi? Ranking the preferences according to mean score was the first stage before the Kruskal-Wallis to identify the preferences by using the mean from the consumer data.

In Kruskal-Wallis output, Table 6.14 presented below revealed that there was a statistically significant difference between the regions for the following preferences:

- ❖ Location factor (LF2 0.001/LF4 0.017 /LF12 0.020/LF13 0.024).
- ❖ External design factor (EX2 0.024).
- ❖ Internal design factor (INF3 0.019/ INF11 0.003).

Table 6-14 Test Statistics

Variables	Asymp. Sig.
Quality of the neighbourhood LF2	.001
Cleanliness of the neighbourhood LF4	.017
Fresh air in location LF12	.012
Soil of land LF13	.024
Finishing EXF2	.024
Privacy INF3	.019
Natural light INF11	.003

If this significance level (Asymp) value is less than .05, then it can be concluded that there is a statistically significant difference.

Post Hoc Test

In order to identify differences between the regions, a post hoc Mann-Whitney test was conducted on the seven significant preferences. Bonferroni adjustment was used to control the error. Using the formula K (K-1)/ 2, where k is the number of groups, the number of comparisons required for the post hoc Mann-Whitney test was determined as follows:

k= the number of groups/number of comparisons required: 13(13-1)/2 = 78

Bonferroni adjustment: 0.05/78 = 0.00064 new alpha

- Table 6.15 shows that significant results were found for LF2, LF4, LF13, EXF2, INF3, INF11, at the new significance level of 0.00064.

- The post hoc Mann-Whitney test was conducted for Quality of the neighbourhood LF2, where there are several residential neighbourhoods in every city, and they are characterised by their quality in terms of either services or the site, design, and population, which is important for homebuyers, and is normally something they look for before buying a home (Kauko, 2006). There was a statistically significant difference between people in the JAWF region and people in the ASIR, MAKKAH, EAST, QASSAM, RIYADH and MADINAH regions. Respondents from JAWF gave statistically significantly different rankings of importance to this variable compared to those from ASIR, MAKKAH, EAST, QASSAM, RIYADH and MADINAH at sig .001 (P = < 0.0064).

- Cleanliness of the neighbourhood LF4 relates to maintaining high standards of cleanliness as well as continuous maintenance services, cutting trees, cleaning sidewalks and streets, the overall level of cleanliness in the area, and how the neighbourhood is organised, all of which give a good impression of a neighbourhood and which may all contribute to providing a neighbourhood that is superior to another (Vedia DoÈkmeci, 2000). The output

shows a statistically significant difference between people in the JAWF region and people in the MAKKAH region. Respondents from MAKKAH gave statistically significantly higher rankings of importance to this variable compared to those from JAWF at sig .001 (P = < 0.0064). However, it seems that this variable is not of great interest to respondents.

- For Name of district LF10, there are some renowned neighbourhood names in each city, sometimes because of the services in the neighbourhood, and the perception that there is a good population living there may give others the impression and the desire to live in these neighbourhoods (Dietrich Earnhart, 2002). The output shows there was a statistically significant difference between people in the RIYADH region and people in the MAKKAH and ASIR regions. Respondents from RIYADH gave statistically significantly higher rankings of importance to this variable compared to those from MAKKAH and ASIR at sig .001 (P = < 0.0064), so it seems that Riyadh consumers sometimes look for the neighbourhood's name, even if it is not that good, as Mr. Saleh said in the focus group.

- For Soil of land LF13, it is very important to know that the soil and the land is not prone to flooding, as exploitation of the floodplain areas to turn them into residential neighbourhoods is very serious, and has happened in Saudi Arabia: in 2013, a lot of neighbourhoods in Riyadh and Jeddah sank after heavy rains (Dietrich Earnhart, 2002). The output shows a statistically significant difference between people in the JAWF region and people in the ASIR, MAKKAH, QASSAM, RIYADH and MADINAH regions. Respondents from JAWF gave statistically significantly lower rankings of importance for this variable compared to those from ASIR, MAKKAH, QASSAM, RIYADH and MADINAH at sig .001 (P = < 0.0064). This could be because, although the weather in JAWF is cold and raining most of the year, there is a good infrastructure for storm water drainage, which was built a long time ago.

- With regard to Finishing EXF2, this variable addresses type and quality of finishing such as painting, flooring, etc., and the kinds and quality of the material used. Materials for the home such as in coating the entire flooring, could influence the homebuyers' decisions, as could the quality of the building, where consistency and aesthetic elements are designed to attract consumers (Vedia DoÈkmeci, 2000). The output shows a statistically significant difference between people in the JAWF region and people in the ASIR region. Respondents from ASIR (which is in the south of Saudi Arabia) gave statistically significantly higher rankings of importance to finishing compared to those from JAWF (which is in the north of Saudi Arabia) at sig .001 (P = < 0.0064). This difference could be because of the different cultures in the two regions and the way that they are looking for their homes is different.

- For Privacy INF3, building design may contribute to providing privacy to the house, where the design and location of windows contribute to give privacy from neighbours and also from visitors (Gibler et al., 2014). The output shows a statistically significant difference between people from the JAWF region and people in the ASIR region. Respondents from ASIR gave statistically significantly higher rankings of importance to privacy compared to those from JAWF at sig .001 (P = < 0.0064). This could be because of the different cultures in the two regions.

- For Natural light INF11, this variable looks at how important natural light is for the buyer, where it is very important for the home as it adds to the atmosphere and reduces electricity consumption (Vedia DoÈkmeci, 2000). The output shows a statistically significant difference between people from the JAWF region and people in the ASIR, MAKKAH, EAST, HAIL, QASSAM, RIYADH and MADINAH regions. Respondents from JAWF gave statistically significantly lower rankings of importance to natural light compared to those from ASIR, MAKKAH, EAST, HAIL, QASSAM, RIYADH and MADINAH at sig

.001 (P = < 0.0064). This could be because the weather in JAWF is cold and it snows in the winter, so houses here do not get a lot of sun compared with the other regions.

❖ Overall, respondents from JAWF gave statistically significantly different rankings of importance compared to respondents from the other regions. JAWF is in the north west of Saudi, close to the Jordanian border, so this could be a cultural effect from Jordan.

Table 6-15 Test statistics

Variables	Cities	Sig	Adj.Sig.
Quality of the neighbourhood LF2	ASIR – JAWF	.000	.003
	MAKKAH – JAWF	.000	.007
	EAST – JAWF	.000	.008
	QASSAM – JAWF	.000	.015
	RIYADH – JAWF	.000	.008
	MADINAH - JAWF	.001	.041
Cleanliness of the neighbourhood LF4	MAKKAH - JAWF	.001	.039
Name of district LF10	RIYADH – MAKKAH	.000	.005
	RIYADH – ASIR	.000	.038
Soil of land LF13	ASIR – JAWF	.000	.004
	MAKKAH – JAWF	.000	.005
	RIYADH – JAWF	.000	.005
	MIDINAH – JAWF	.001	.043
	QASSAM - JAWF	.000	.033
Finishing EXF2	ASIR - JAWF	.000	.018
Privacy INF3	ASIR - JAWF	.000	.039
Natural light INF11	EAST – JAWF	.000	.002
	QASSAM – JAWF	.000	.004
	RIYADH – JAWF	.000	.002
	MAKKAH – JAWF	.000	.009
	ASIR – JAWF	.000	.034
	MADINAH – JAWF	.000	.037
	HAIL - JAWF	.000	.037

➢ Each Group of Preferences in the 13 Regions

In this part, the study will look to see if there is a difference across the regions for each consumer preference factor. The Kruskal-Wallis output in Table 6.16, presented below, revealed that there was a statistically significant difference between the regions with each group.

❖ External design factor (EX2 0.024).

❖ Specification home details (SPF1 0.016).

Table 6-16 Test Statistics

Variables	Asymp. Sig.
Finishing EXF2	.024
Quality of the building SPF1	.016

If this significance level (Asymp) value is less than .05, then it can concluded that there is a statistically significant difference.

Post Hoc Test

In order to identify which particular regions differed, a post hoc Mann-Whitney test was conducted on the seven significant preferences, by using Bonferroni adjustment to control the error. Using the formula K (K-1)/ 2, where k is the number of groups, the number of comparisons required for the post hoc Mann-Whitney test was determined as follows:

Number of comparisons required: 13(13-1)/2 = 78

Bonferroni adjustment: 0.05/78 = 0.00064 new alpha

- Table 6.17 shows that a significant result was found for SPF1, at the new significance level of 0.00064.

- The post hoc Mann-Whitney test revealed that, for Quality of the building SPF1, which is the quality comprising all the building materials, finishing, design and the location of the building (Vedia DoÈkmeci, 2000), the output showed a statistically significant difference between people in the JAWF region and people in the ASIR region. Respondents from JAWF gave statistically significantly lower rankings of importance to this variable compared to those from ASIR at sig .001 (P = < 0.0064). The quality of the building is something that homebuyers normally look for, so the difference in the score could be because of differences in culture between the north and the south of Saudi.

Table 6-17 Test statistics

Variables	Cities	Sig	Adj.Sig.
Quality of the building SPF1	ASIR – JAWF	.000	.018

6.4.3 Factor Analysis

6.4.3.1 Factor Analysis Test for All the Home Preference Variables

Test Question

- *What is the highest consumer preference factor in the consumer questionnaire?*

The Reliability

In Table 6.18, Cronbach's alpha coefficient is above .7 for all the factors, which indicates that our sample is reliable (Field, 2013).

Table 6-18 Component reliability coefficients

Consumer questionnaire	Number of items	Items dropped	Cronbach's alpha	When the alpha is 0.7 or higher, it means the consistency of the component is acceptable.
The location and specification details factor	13	-	.898	
The external design factor	8	-	.857	
The internal design factor	11	-	.890	
The district and street lot	6	-	.880	

The Kaiser-Meyer-Olkin Value

In Table 6.19, the KMO is above .6 for the questionnaire, which indicates that our sample reached the required standard (Field, 2013).

Table 6-19 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy for consumer questionnaire		.958	Values of 0.5 are acceptable. Values between 0.5 and 0.7 are good. Values between 0.7 and 0.8 are great. Values above 0.8 are superb.
Bartlett's Test of Sphericity	Approx. Chi-Square	18760.158	
	df	703	
	Sig.	.000	

In Table 6.20, each component is set according to a series of correlations between different preferences. Thus, it shows how correlated a preference could be to other factors. The first column shows initial eigenvalues related to eigenvalue of the correlation matrix and indicates which components of the table remain in analysis. To carry out the factor analysis, only components with eigenvalues of more than 1 are selected and those with eigenvalues of less

than 1 are excluded. The initial and rotated eigenvalues are used to confirm the variation explained by each preference's components. Lower values indicate that the contribution to the explanation of the variances in the set of the preferences survey attributes is minimal.

Table 6-20 Total variance explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	15.302	40.269	40.269	5.469	14.391	14.391
2	2.893	7.613	47.882	4.965	13.065	27.457
3	1.897	4.992	52.875	4.641	12.212	39.669
4	1.473	3.876	56.751	2.321	6.108	45.777
5	1.243	3.271	60.023	1.983	5.219	50.996
6	1.101	2.897	62.920	1.935	5.092	56.089

For example, the initial eigenvalue of the first financial preference in Table 6.20 is 15.302. Hence, the proportion of the total test variance accounted for by the first factor is 40.2% (the figure given in % in the variance column). In this analysis for the Principal Component Analysis of occurrence, just six components carry eigenvalues of 1 and more, and account for 62.5% of the variance, as shown in the cumulative % column. This means that the selected six components present 62.5% of the whole variance. Therefore, the six components can be considered as representative of all consumer preferences. Another way of presenting the most important factors of a study is through a scree plot of data, shown here in Figure 6.9.

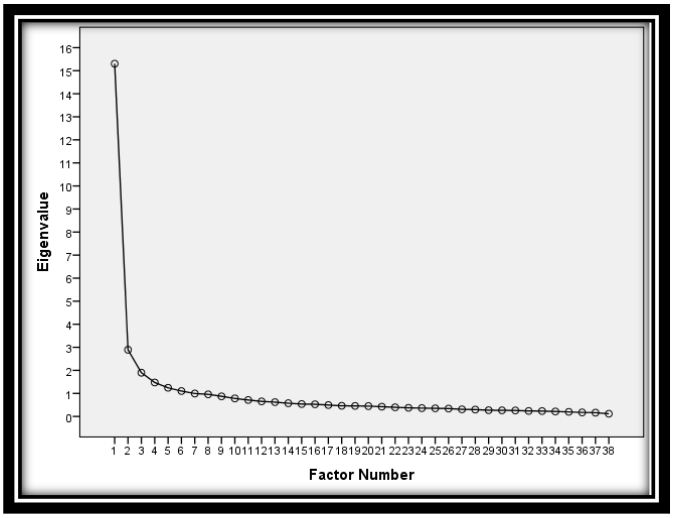

Figure 6-9 Scree plot for all the home preference variables

The purpose of a scree plot is to provide a graphical picture of the eigenvalue for each component extracted in SPSS. As the figure shows, the slope of the scree is levelling off, while moving towards components with eigenvalue less than 1. The point of interest is defined between components 3 and 2, where the figure curve connects to the points, starting to flatten out and become horizontal.

From principal component analysis, six components that have an eigenvalue of more than 1 are selected. The next phase is the extraction of a rotated component matrix in order to find out which consumer preferences are contributing the highest level of influence, as shown in Table 6.21. The matrix loading score presented shows the degree of influence of each consumer preference in the survey. This factor loading tells us about the relative contribution that a variable makes to a factor. Most variables have high loadings on the most important factors, and fewer loadings on other factors. It is recommended to interpret factor loadings with an absolute value greater than 0.3. From Table 6.21, it can be seen that the preference Safety of the neighbourhood (LF3 .800) has a greater influence on component 1 compared to other components, whereas the preference Quality of the building (SPF1 .771) has more influence on component 2 in relation to other components, and Lot size (EXF4 .715) has more influence on component 3 in relation to other components.

Table 6-21 Rotated factor matrix[a]

The variables	Components					
	1	2	3	4	5	6
Safety of the neighbourhood LF3	.800	.378				
Quality of the neighbourhood LF2	.774	.335				
Cleanliness of the neighbourhood LF4	.774	.340				
Fresh air in location LF12	.652	.308		.352		
Soil of land LF13	.639					
Accessibility of location LF8	.632					.349
Closeness to school LF5	.492					.447
Design of district LF11	.455		.367	.348		.326
Street width LF9	.397		.315			.334
Name of district LF10	.388			.358		
Closeness to family LF1						
Quality of the building SPF1	.434	.771				
Materials used in the building SPF4	.414	.660				
Cold and hot system SPF6		.659				
Insulation SPF5		.656		.321		
Age of the building SPF2	.331	.566				
Functionality INF1		.559	.427			
Finishing EXF2	.361	.553	.440			
Natural light INF11		.513		.481		
Privacy INF3	.343	.399			.388	
Lot size EXF4			.715			
Building size EXF5			.676			
Number of building storeys EXF8			.582			
Bigger home even if it is far from a city			.578			
EXF6			.540	.358		
Garden EXF3		.357	.514			
Aesthetics EXF1			.510			
Number of parking spaces EXF7						
Modern design INF2						
Size of windows INF10				.585		
Storage room INF8		.302		.471	.367	
Facility room INF9			.433	.459		
Number of bedrooms INF4		.321	.414		.635	
Number of bathrooms INF5		.301	.387		.594	
Visitors' space INF7			.382		.407	
Space for family INF6		.389	.389		.391	
Near to public transport LF7						.663
Service in the neighbourhood LF6	.393					.540
The environmentally friendly nature of the building SPF3		.335				.440

The most important and influential preferences of each component are extracted to form a reduced list of preferences, which is highly manageable without losing a large amount of data. By applying factor analysis and data reduction in this survey, the 38 consumer preferences in the questionnaire were reduced to six components, as shown in Table 6.22. It identifies consumer preferences, which are groupings of preferences from the 38 initially identified. Factor analysis occurs whereby financial consumer preference components with eigenvalues in excess of 1 are extracted, leaving a total of six. The table below reports both the variance

explained by these retained factors from the total variance of all 38 consumer preference factors and the factor loadings (and their variances) following varimax rotation (an orthogonal rotation method) in which the variance of each of the factors is maximised.

Table 6-22 New group of variables

Component	Rotated Component Matrix[a]	Code	Extracted eigenvalue	component weight %
Neighbourhoods quality and need (NQN)	Safety of the neighbourhood LF3	NQN1	15.302	14.391
	Quality of the neighbourhood LF2	NQN2		
	Cleanliness of the neighbourhood LF4	NQN3		
	Fresh air in location LF12	NQN4		
	Soil of land LF13	NQN5		
	Accessibility of location LF8	NQN6		
	Closeness to school LF5	NQN7		
	Design of district LF11	NQN8		
	Street width LF9	NQN9		
	Name of district LF10	NQN10		
Design of and details in home (DHD)	Quality of the building SPF1	DHD1	2.893	13.065
	Materials used in the building SPF4	DHD2		
	Cold and hot system SPF6	DHD3		
	Insulation SPF5	DHD4		
	Age of the building SPF2	DHD5		
	Functionality INF1	DHD6		
	Finishing EXF2	DHD7		
	Natural light INF11	DHD8		
	Privacy INF3	DHD9		
External design preferences (EDP)	Lot size EXF4	EDP1	1.897	12.212
	Building size EXF5	EDP2		
	Number of building storeys EXF8	EDP3		
	Bigger home even if it is far from a city	EDP4		
	EXF6	EDP5		
	Garden EXF3	EDP6		
	Aesthetics EXF1	EDP7		
	Number of parking spaces EXF7			
Extra rooms and internal design preferences (EIP)	Size of windows INF10	EIP1	1.473	6.108
	Storage room INF8	EIP2		
	Facility room INF9	EIP3		
Spaciousness and number of rooms (SNR)	Number of bedrooms INF4	SNR1	1.243	5.219
	Number of bathrooms INF5	SNR2		
	Visitors space INF7	SNR3		
	Space for family INF6	SNR4		
Environmentally friendly nature of the building and services in the neighbourhood (ESN)	Near to public transport LF7	ESN1	1.101	5.092
	Services in the neighbourhood LF6	ESN2		
	The environmentally friendly nature of the building SPF3	ESN3		

Component 1 (Neighbourhoods Quality and Needs NQN)

This component has an eigenvalue of 15.302. This component covered 10 different preferences; the Safety of the neighbourhood (NQN1) (.800) got the highest score. Name of district (NQN10) was lowest (.388).

Component 2 (Design and Homes Details DHD)

This component has an eigenvalue of 2.893. This component covered nine different preferences; Quality of the building (DHD1) (.771) got the highest score. Privacy (DHD9) was lowest (.399).

Component 3 (External Design Preferences EDP)

This component has an eigenvalue of 1.897. This component covered seven different preferences; Lot size (EDP1) (.715) got the highest score. Number of parking spaces (EDP2) was lowest (.510).

Component 4 (Extra Rooms and Internal Design Preferences EIP)

This component has an eigenvalue of 1.473. This component covered three different preferences; Size of windows (EIP1) (.585) got the highest score. Facility room (EIP3) was lowest (.459).

Component 5 (Spaciousness and Number of Rooms SNR)

This component has an eigenvalue of 1.243. This component covered four different preferences; Number of bedrooms (SNR1) (.635) got the highest score, whilst the Space for family (SNR4) was lowest (.391).

Component 6 (Environmentally friendly nature of the building and Services in the Neighbourhood ESN)

This component has an eigenvalue of 1.101. This component covered three different preferences; Near to public transport (ESN1) (.663) got the highest score, whilst the environmentally friendly nature of the building (ESN3) was lowest (.440).

6.4.3.1.1 Consumer Questionnaire Model with all the Variables Together (Model A)

This study identified and ranked the indicators of consumer preferences according to their level of significance, based on consumers' views. In Table 6.23, each component is set according to a series of correlations between different preferences.

Table 6-23 The new group of variables based on consumers' views

Components	Initial Eigenvalues % of Variance	Extraction Sums of Squared Loadings % of Variance	Rotation Sums of Squared Loadings % of Variance
1	40.269	39.243	14.391
2	7.613	6.553	13.065
3	4.992	3.876	12.212
4	3.876	2.697	6.108
5	3.271	2.015	5.219
6	2.897	1.704	5.092

The above table shows that the components after the factor analysis for the 38 variables are in six different groups. The consumer model shows the regrouping of all the variables after the factor analysis was conducted. It also shows the different components with the weight of each group. After the reduction of the variables, the model shows the priority stage for buyers. This factor loading tells us about the relative contribution that a variable makes to a factor. Most variables have high loadings on the most important factors, and fewer loadings on other factors. It is recommended to interpret factor loadings with an absolute value greater than 0.3 (Field, 2013).

From Table 6.24 it is apparent that the preference variable Safety of the neighbourhood (NQN1 .800) has greater influence on component 1 compared to other components, whereas the preference Quality of the building (DHD1 .771) has more influence on component 2 in relation to other components, and Lot size (EDP1 .715) has more influence on component 3 in relation to other components.

Table 6-24 The new groups of components based on consumers' views

Component	Rotated Component Matrix[a]	Code	Factor loading score	components weight %
Neighbourhood quality and needs (NQN)	Safety of the neighbourhood	NQN1	.800	14.391
	Quality of the neighbourhood	NQN2	.774	
	Cleanliness of the neighbourhood	NQN3	.774	
	Fresh air in location	NQN4	.652	
	Soil of land	NQN5	.639	
	Accessibility of location	NQN6	.632	
	Closeness to school	NQN7	.492	
	Design of district	NQN8	.455	
	Street width	NQN9	.397	
	Name of district	NQN10	.388	
Design and home details (DHD)	Quality of the building	DHD1	.771	13.065
	Materials used in the building	DHD2	.660	
	Cold and hot system	DHD3	.659	
	Insulation	DHD4	.656	
	Age of the building	DHD5	.566	
	Functionality	DHD6	.559	
	Finishing	DHD7	.553	
	Natural light	DHD8	.513	
	Privacy	DHD9	.399	
External design preferences (EDP)	Lot size	EDP1	.715	12.212
	Building size	EDP2	.676	
	Number of building Stories	EDP3	.582	
	Bigger home even if it far from city	EDP4	.578	
	Garden	EDP5	.540	
	Aesthetics	EDP6	.514	
	Number of parking spaces	EDP7	.510	
Extra rooms and internal design preferences (EIP)	Size of windows	EIP1	.585	6.108
	Storage room	EIP2	.471	
	Facility room	EIP3	.459	
Spaciousness and number of rooms (SNR)	Number of bedrooms	SNR1	.635	5.219
	Number of bathrooms	SNR2	.594	
	Visitors' space	SNR3	.407	
	Space for family	SNR4	.391	
Environmentally friendly nature of the building and services in the neighbourhood (ESN)	Near to public transport	ESN1	.663	5.092
	Service in the neighbourhood	ESN2	.540	
	The sustainability of the building	ESN3	.440	

Moreover, Figure 6.10 shows the model and the component codes with circles showing the size of each one.

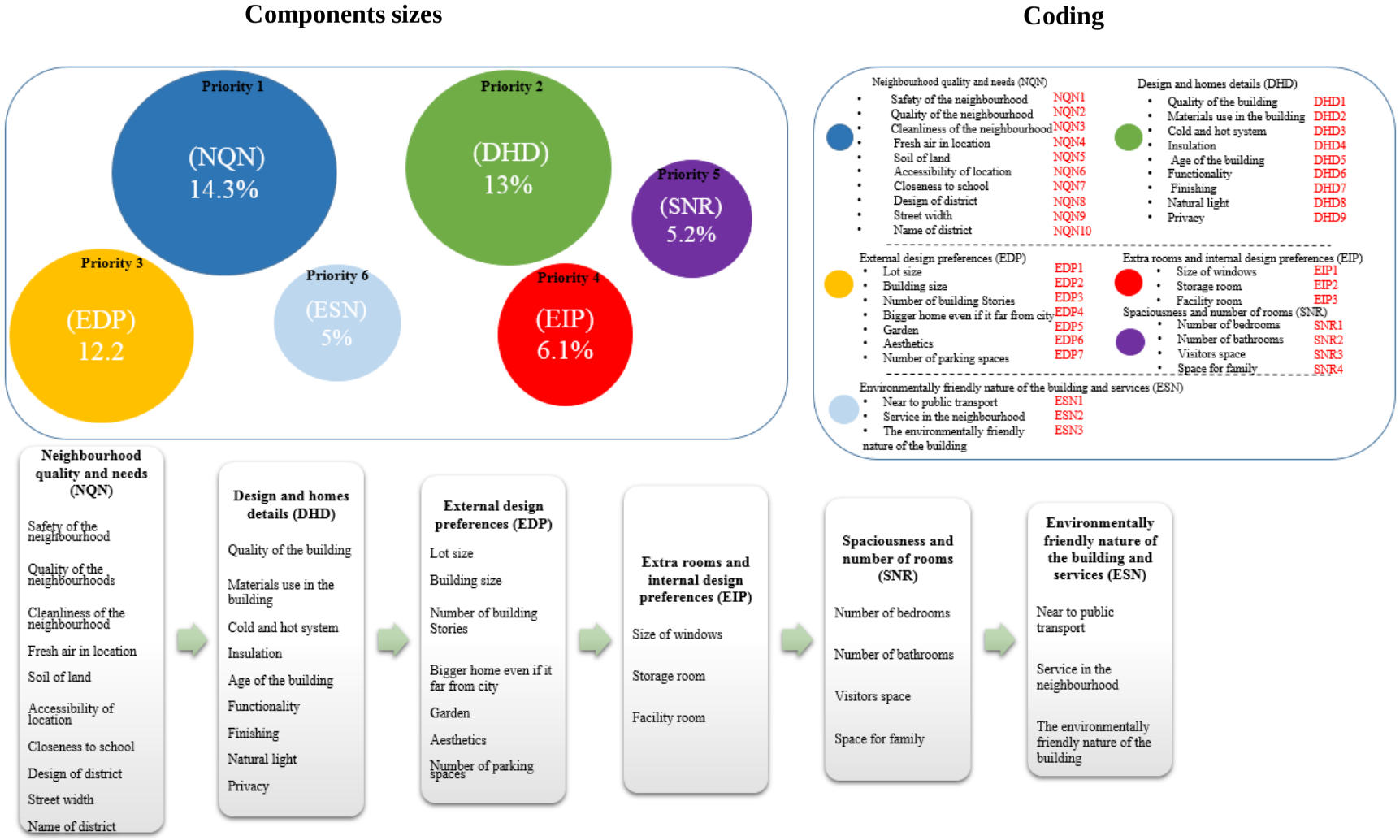

Figure 6-10 The components and coding

Model (A) in Figure 6.11 shows the consumer priorities split into groups, starting with Neighbourhood quality and needs (NQN), which includes nine variables. The second priority is Design and home details (DHD), which also includes nine variables. The third priority is External design preferences (EDP), which includes six variables. Fourth is the Extra rooms and internal design preferences (EIP), which includes three variables, whilst the fifth priority is Spaciousness and number of bedrooms (SNR), which includes three variables. The final priority is environmentally friendly nature of the building and services in the neighbourhood (ESN), which includes three variables.

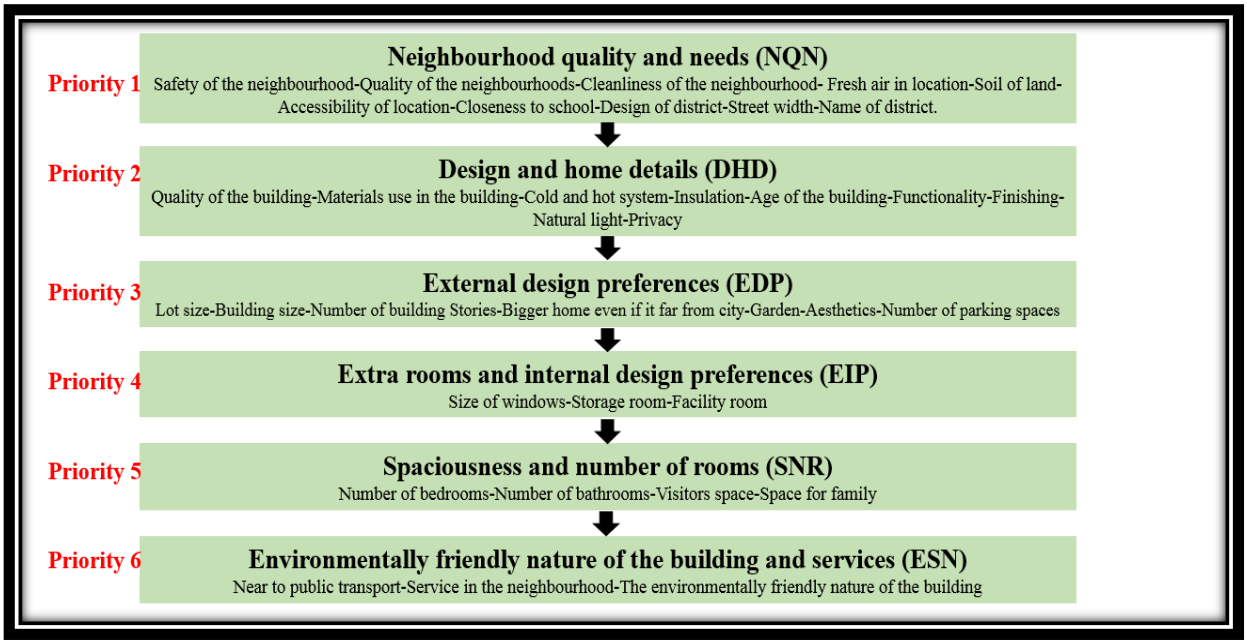

Figure 6-11 Model shows all the variables group of variables from the consumer questionnaire

6.4.3.2 Factor Analysis Test for Each Home Preference Variable

Test Question

- *What are the highest consumer preferences for each factor in the consumer questionnaire?*

The Reliability

In Table 6.25, Cronbach's alpha coefficient is above .7 for each factor, Location, Eternal design, Internal design and Home specification details.

Table 6-25 Reliability Statistics

Component	Cronbach's Alpha	N of Items	Deleted items	When the alpha is 0.7 or higher, it means the consistency of the component is acceptable.
LF	.898	13	-	
EXF	.857	8	-	
INF	.890	11	-	
SPF	.880	6	-	

The Kaiser-Meyer-Olkin Value

In Table 6.26, the KMO is above .6 for all the factors, which indicates that our sample has a great result (Field, 2013).

Table 6-26 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy for the Location		.923	Recommends accepting values greater than 0.5 as acceptable. Furthermore, values between 0.5 and 0.7 are good, values between 0.7 and 0.8 are great, and values above 0.8 are superb.
Bartlett's Test of Sphericity	Approx. Chi-Square	5768.868	
	df	78	
	Sig.	.000	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy for the External design		.867	
Bartlett's Test of Sphericity	Approx. Chi-Square	2432.466	
	df	28	
	Sig.	.000	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy for the Internal design		.890	
Bartlett's Test of Sphericity	Approx. Chi-Square	4169.819	
	df	55	
	Sig.	.000	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy for home specification details		.890	
Bartlett's Test of Sphericity	Approx. Chi-Square	4169.819	
	df	55	
	Sig.	.000	

6.4.3.2.1 Location factor

In Table 6.27, each component is set according to a series of correlations between different preferences. Thus, it shows how correlated a preference could be to other factors. The first column, Initial Eigenvalues, relates to eigenvalue of the correlation matrix and indicates which components of the table remain in analysis. To carry out the factor analysis, only components with eigenvalues of more than 1 are selected and those with eigenvalues of less than 1 are excluded. The initial and rotated eigenvalues are used to confirm the variation explained by each preference's components. Lower values indicate that the contribution to the explanation of the variances in the set of the preferences survey attributes is minimal.

Table 6-27 Total variance explained

Components	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.448	49.602	49.602	3.735	28.732	28.732
2	1.237	9.513	59.115	2.021	15.547	44.279
3	1.088	8.371	67.486	1.793	13.792	58.071

For example, in Table 6.27 the initial eigenvalue of the first location preference is 6.448. Hence, the proportion of the total test variance accounted for by the first factor is 49.6% (the figure given in % of variance column). In this analysis, just three components carry eigenvalues of 1 and more, and account for 65.4% of the variance, as shown in the cumulative % column. Therefore, the three components can be considered as representative of 13 consumer preferences. The following scree plot of data is another way of presenting the most important factors of the study.

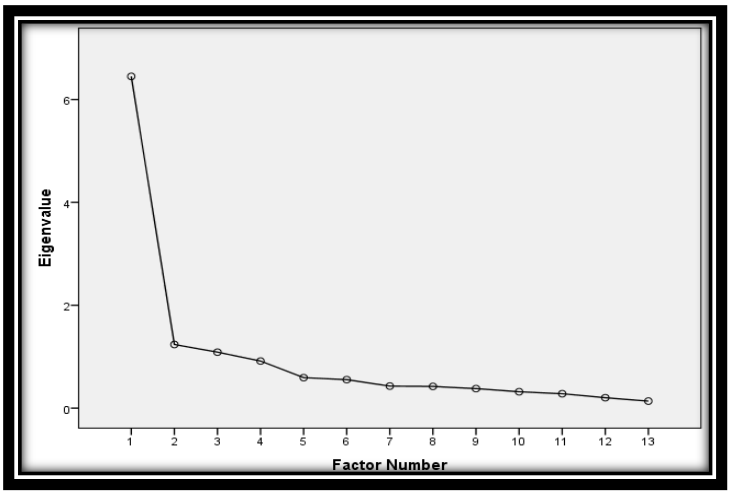

Figure 6-12 Scree plot for the location factor

As Figure 6.12 shows, the slope of the scree is levelling off, while moving towards components with an eigenvalue of less than 1. The point of interest is defined between components 1 and 2, where the figure curve connects to the points, starting to flatten out and become horizontal. From principal component analysis, three components that have an eigenvalue of more than 1 are selected. The next phase is the extraction of a rotated component matrix for finding out which consumer location preferences are contributing the highest level of influence, as shown in Table 6.28. The matrix loading score presented shows the degree of influence of each consumer location preference in the survey. This factor loading tells us about the relative contribution that a variable makes to a factor. From Table 6.28 below, it can be seen that Safety of the neighbourhood (LF3; 0.894) has greater influence on component 1 compared to other components, whereas the preference Design of district (LF11; 0.713) has more influence on component 2 in relation to other components, and Near to public transport (LF7; 0.645) has more influence on component 3 in relation to other components.

Table 6-28 Rotated factor matrix[a]

The variables	Components		
	1	2	3
Safety of the neighbourhood LF3	.894		
Cleanliness of the neighbourhood LF4	.812	.301	
Quality of the neighbourhood LF2	.799	.340	
Fresh air in location LF12	.608	.501	
Soil of land LF13	.600	.392	
Accessibility of location LF8	.580	.373	.407
Closeness to family LF1			
Design of district LF11		.713	.374
Name of district LF10		.609	
Street width LF9		.511	.398
Near to public transport LF7			.645
Service in the neighbourhood LF6	.352		.642
Closeness to school LF5	.499		.533

The most important and influential preferences of each component are extracted to form a reduced list of preferences, which is highly manageable without losing a large amount of data. By applying factor analysis and data reduction in this survey, the 13 consumer location preferences in the questionnaire were reduced to three components, as shown in Table 6.29. It identifies consumer location preferences, which are groupings of preferences from the 13 initially identified. Factor analysis for consumer location preference components with eigenvalues in excess of 1 are extracted, leaving a total of three. The table reports both the variance explained by these retained factors from the total variance of all 13 location factors as well as the factor loadings (and their variances) following varimax rotation in which the variance of each of the factors is maximised.

Table 6-29 New group of variables

Components	Rotated Component Matrix[a]	Code	Extracted eigenvalue	component weight %
The neighbourhood quality and accessibility (LNQA)	Safety of the neighbourhood LF3	LNQA1	6.448	28.732
	Cleanliness of the neighbourhood LF4	LNQA2		
	Quality of the neighbourhood LF2	LNQA3		
	Fresh air in location LF12	LNQA4		
	Soil of land LF13	LNQA5		
	Accessibility of location LF8	LNQA6		
The neighbourhood name and street design (LNND)	Design of district LF11	LNND1	1.237	15.547
	Name of district LF10	LNND2		
	Street width LF9	LNND3		
The neighbourhood location and services (LNLS)	Near to public transport LF7	LNLS1	1.088	13.792
	Service in the neighbourhood LF6	LNLS2		
	Closeness to school LF5	LNLS3		

Component 1: The Neighbourhood Quality and Accessibility (LNQA)

This component has an eigenvalue of 6.448. This component covered six different preferences; Safety of the neighbourhood (LNQA1) (.894) got the highest score, whilst the Accessibility of location (LNQA6) was lowest (.580).

Component 2: The Neighbourhood Name and Street Design (LNND)

This component has an eigenvalue of 1.237. This component covered three different preferences; Design of district (LNND1) (.713) got the highest score, whilst Street width (LNND3) was lowest (.511).

Component 3: The Neighbourhood Location and Services (LNLS)

This component has an eigenvalue of 1.088. This component covered three different preferences; Near to public transport (LNLS1) (.645) got the highest score, whilst Closeness to school (LNLS3) was lowest (.533).

6.4.3.2.2 Exterior Design Factor

The initial eigenvalue of the exterior design preferences in Table 6.30 is 4.118. Hence, the proportion of the total test variance accounted for by the first factor is 51.4% (the figure given in % of variance column). In this analysis, just 1 component carries an eigenvalue of 1 and more, and accounts for 51.4% of the variance, as shown in the cumulative % column. Therefore, this 1 component can be considered as the representative of eight consumer preferences. The following scree plot of data is another way of presenting the most important factors of the study.

Table 6-30 Total Variance Explained

Components	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.118	51.475	51.475	3.579	44.739	44.739

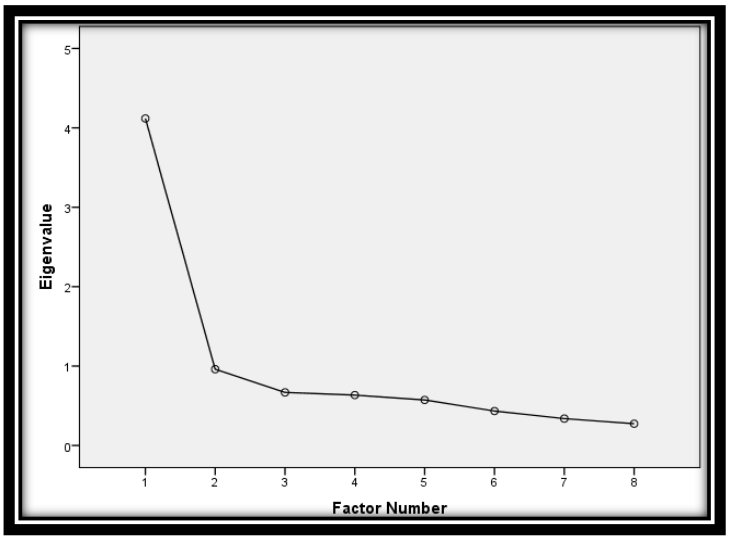

Figure 6-13 Scree plot for the exterior design factor

As Figure 6.13 shows, the slope of the scree is levelling off, while moving towards components with an eigenvalue of less than 1. The point of interest is defined between components 3 and 2, where the figure curve connects to the points, starting to flatten out and become horizontal. From principal component analysis, one component that has an eigenvalue of more than 1 is selected. The next phase is the extraction of a rotated component matrix for finding out which exterior design consumer preferences are contributing the highest level of influence, shown in Table 6.31. The matrix loading score presented below shows the degree of influence of each exterior design consumer preference in the survey. This factor loading tells us about the relative contribution that a variable makes to a factor. From the table, it can be seen that Lot size (EXF4; 0.819) has greater influence on component 1.

Table 6-31 New group of variables

Components	Rotated Component Matrix[a]	Code	Extracted eigenvalue	component weight %
Exterior design factor EXF	Lot size	EXF4	4.118	51.475
	Building size	EXF5		
	Finishing	EXF2		
	Garden	EXF3		
	Number of building storeys	EXF8		
	Aesthetics	EXF1		
	Number of parking spaces	EXF7		
	Bigger home even if it is far from a city	EXF6		

6.4.3.2.3 Interior Design Factor

The initial eigenvalue of the first interior design preferences in Table 6.32 is 5.497. Hence, the proportion of the total test variance accounted for by the first factor is 49.9% (the figure given in % of variance column). In this analysis, just two components carry eigenvalues of 1 and more, and account for 59.5% of the variance, as shown in the cumulative % column. This means that the two selected components present 59.5% of the whole variance. Therefore, the two components can be considered as representative of 11 consumer preferences.

The following scree plot of data is another way of presenting the most important factors of the study.

Table 6-32 Total variance explained

Components	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.497	49.970	49.970	3.713	33.759	33.759
2	1.061	9.643	59.614	2.844	25.855	59.614

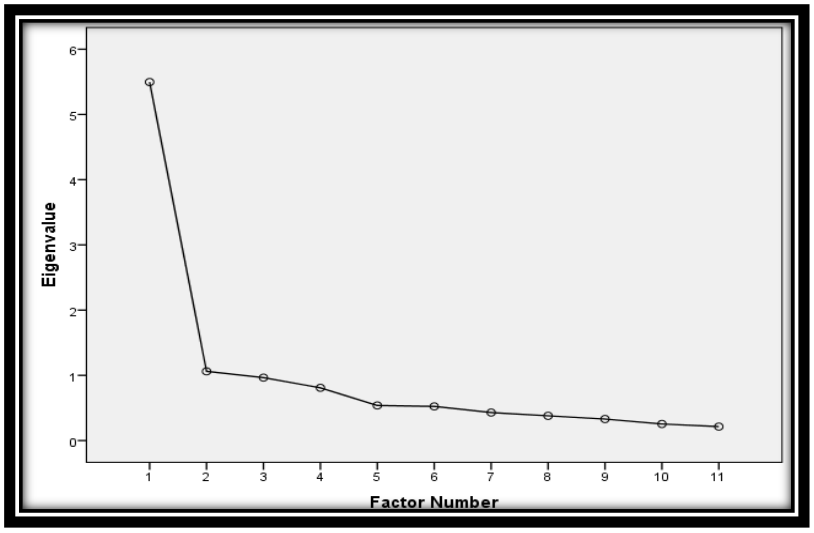

Figure 6-14 Scree plot for the interior design factor

As Figure 6.14 shows, the slope of the scree is levelling off, while moving towards components with an eigenvalue of less than 1. The point of interest is defined between components 3 and 2, where the figure curve connects to the points, starting to flatten out and become horizontal. From principal component analysis, two components that have an eigenvalue of more than 1

are selected. The next phase is the extraction of a rotated component matrix for finding out which interior design consumer preferences are contributing the highest level of influence, as shown in Table 6.33. The matrix loading score presented shows the degree of influence of each interior design preference in the survey. This factor loading tells us about the relative contribution that a variable makes to a factor. From Table 6.34, it can be seen that Number of bedrooms (INF4; 0.850) has greater influence on component 1 and Size of windows (INF10; 0.869) has greater influence on component 2.

Table 6-33 Rotated component matrix[a]

The variables	Component	
	1	2
Number of bedrooms INF4	.850	
Number of bathrooms INF5	.838	
Privacy INF3	.745	
Functionality INF1	.704	.311
Space for family INF6	.702	.414
Modern design INF2	.359	
Size of windows INF10		.869
Natural light INF11	.385	.684
Facility room INF9	.327	.674
Storage room INF8	.466	.650
Visitors' space INF7	.375	.485

Table 6-34 New group of variables

Component	Rotated Component Matrix[a]	Code	Extracted eigenvalue	component weight %
Design and functionality (INDF)	Number of bedrooms INF4	INDF1	5.497	33.759
	Number of bathrooms INF5	INDF2		
	Privacy INF3	INDF3		
	Functionality INF1	INDF4		
	Space for family INF6	INDF5		
	Modern design INF2	INDF6		
Extra space and brightness (INSL)	Size of windows INF10	INSL1	1.061	25.855
	Natural light INF11	INSL2		
	Facility room INF9	INSL3		
	Storage room INF8	INSL4		
	Visitors' space INF7	INSL5		

Component 1: Design and Functionality (INDF)

This component has an eigenvalue of 5.497. This component covered six different preferences; Number of bedrooms (INDF1) (.850) got the highest score, whilst Modern design (INDF6) was lowest (.359).

Component 2: Extra Space and brightness (INSL)

This component has an eigenvalue of 1.061. This component covered five different preferences; Size of windows (INSL1) (.749) got the highest score; Visitors' space (INSL5) was lowest (.485).

6.4.3.2.4 Home Specification Details Factor

The initial eigenvalue of the first home specification details preference in Table 6.35 is 3.955. Hence, the proportion of the total test variance accounted for by the first factor is 65.9% (the figure given in % of variance column). Therefore, this one component can be considered as representative of six consumer preferences. The following scree plot of data is another way of presenting the most important factors of the study.

Table 6-35 Total variance explained

Components	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.955	65.916	65.916	3.582	59.704	59.704

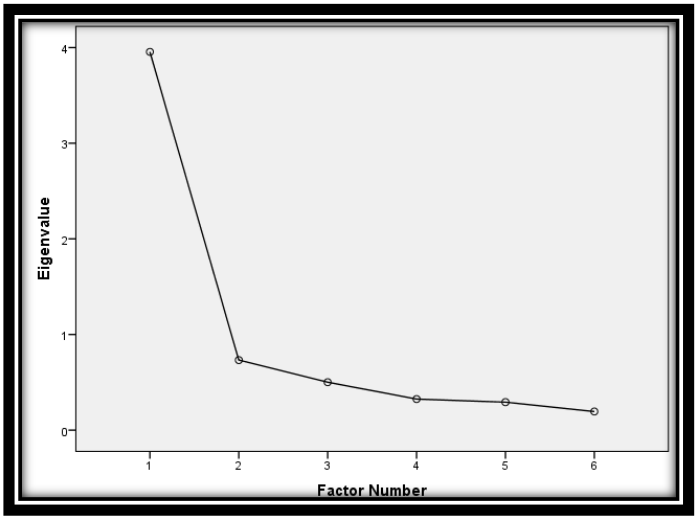

Figure 6-15 Scree plot home for the specification details factor

Figure 6.15 shows the slope of the scree is levelling off, while moving towards components with eigenvalue less than 1. The point of interest is defined between components 3 and 2, where the figure curve connects to the points, starting to flatten out and become horizontal. From

principal component analysis, one component with an eigenvalue of more than 1 is selected. The next phase is the extraction of a rotated component matrix for finding out which preferred home specification details are contributing the highest level of influence, as shown in Table 6.36. The matrix loading score presented shows the degree of influence of each home specification detail in the survey. This factor loading tells us about the relative contribution that a variable makes to a factor. From Table 6.37 below, the home specification detail Materials used in the building (SPF4; 0.875) has the greatest influence on component 1.

Table 6-36 Factor Matrix[a]

The variables	
Materials used in the building SPF4	.875
Quality of the building SPF1	.864
Cold and hot system SPF6	.803
Age of the building SPF2	.766
Insulation SPF5	.759
The environmentally friendly nature of the building SPF3	.512

Table 6-37 New group of variables

Components	Rotated Component Matrix[a]	Code	Extracted eigenvalue	component weight %
Home specification details factor SPF	Materials used in the building SPF4	SPF1	3.955	59.704
	Quality of the building SPF1	SPF2		
	Cold and hot system SPF6	SPF3		
	Age of the building SPF2	SPF4		
	Insulation SPF5	SPF5		
	The environmentally friendly nature of the building SPF3	SPF6		

6.4.3.2.5 Consumer Questionnaire Model for Each Group (Model B)

This study identified and ranked the indicators of consumer preferences according to their level of significance, based on consumers' views. Table 6.38 shows the grouping of each factor; the components are set according to a series of correlations between different preferences.

Table 6-38 The sub-groups of each factor based on consumers' views

Location		
Components	Initial Eigenvalues % of Variance	Rotation Sums of Squared Loadings % of Variance
1	49.602	28.732
2	9.513	15.547
3	8.371	13.792
Exterior design		
Components	Initial Eigenvalues % of Variance	Extraction Sums of Squared Loadings % of Variance
1	51.475	44.739
Interior design		
Components	Initial Eigenvalues % of Variance	Rotation Sums of Squared Loadings % of Variance
1	49.970	33.759
2	9.643	25.855
Home specification details		
Components	Initial Eigenvalues % of Variance	Extraction Sums of Squared Loadings % of Variance
1	65.916	59.704

From Table 6.39, it can be seen that the location preference Safety of the neighbourhood (LNQA1; 0.894) has greater influence on component 1 compared to other components, whereas the preference Design of district (LNND1; 0.713) has more influence on component 2 in relation to other components and Near to public transport (LNLS1; 0.645) has more influence on component 3 in relation to other components. The Exterior design (EXF4; 0.819) has greater influence on component 1. The Internal design (INDF1; 0.850) has greater influence on component 1 and (INSL1; 0.869) has greater influence on component 2. The Home specification detail (SPF1; 0.875) has greater influence on component 1.

Table 6-39 The new component sub-groups based on consumers' views

Component	Rotated Component Matrix[a]	Code	Factor loading score	component weight %
Location				
The neighbourhood quality and accessibility (LNQA)	Safety of the neighbourhood	LNQA1	.894	28.732
	Cleanliness of the neighbourhood	LNQA2	.812	
	Quality of the neighbourhood	LNQA3	.799	
	Fresh air in location	LNQA4	.608	
	Soil of land	LNQA5	.600	
	Accessibility of location	LNQA6	.580	
The neighbourhood name and street design (LNND)	Design of district	LNND1	.713	15.547
	Name of district	LNND2	.609	
	Street width	LNND3	.511	
The neighbourhood location and services (LNLS)	Near to public transport	LNLS1	.645	13.792
	Services in the neighbourhood	LNLS2	.642	
	Closeness to school	LNLS3	.533	
Exterior design				
Exterior design factor EXF	Lot size	EXF4	.819	51.475
	Building size	EXF5	.816	
	Finishing	EXF2	.652	
	Garden	EXF3	.637	
	Number of building storeys	EXF8	.636	
	Aesthetics	EXF1	.618	
	Number of parking spaces	EXF7	.569	
	Bigger home even if it is far from a city	EXF6	.550	
Internal design				
Design and functionality (INDF)	Number of bedrooms	INDF1	.850	33.759
	Number of bathrooms	INDF2	.838	
	Privacy	INDF3	.745	
	Functionality	INDF4	.704	
	Space for family	INDF5	.702	
	Modern design	INDF6	.359	
Extra space and brightness (INSL)	Size of windows	INSL1	.869	25.855
	Natural light	INSL2	.684	
	Facility room	INSL3	.674	
	Storage room	INSL4	.650	
	Visitors' space	INSL5	.485	
Home specification details				
Home specification details factor (SPF)	Materials used in the building	SPF1	.875	59.704
	Quality of the building	SPF2	.864	
	Cold and hot system	SPF3	.803	
	Age of the building	SPF4	.766	
	Insulation	SPF5	.759	
	The environmentally friendly nature of the building	SPF6	.512	

Figure 6.16 shows the model and the component codes with circles showing the size of each factor. The consumer model (B) in Figure 6.17 shows each group of factors (location-external design-internal design-home specification details), grouping the variables in each factor after completing the factor analysis. It also shows the different components with the weight of each group. The model shows the priorities in each factor group for buyers.

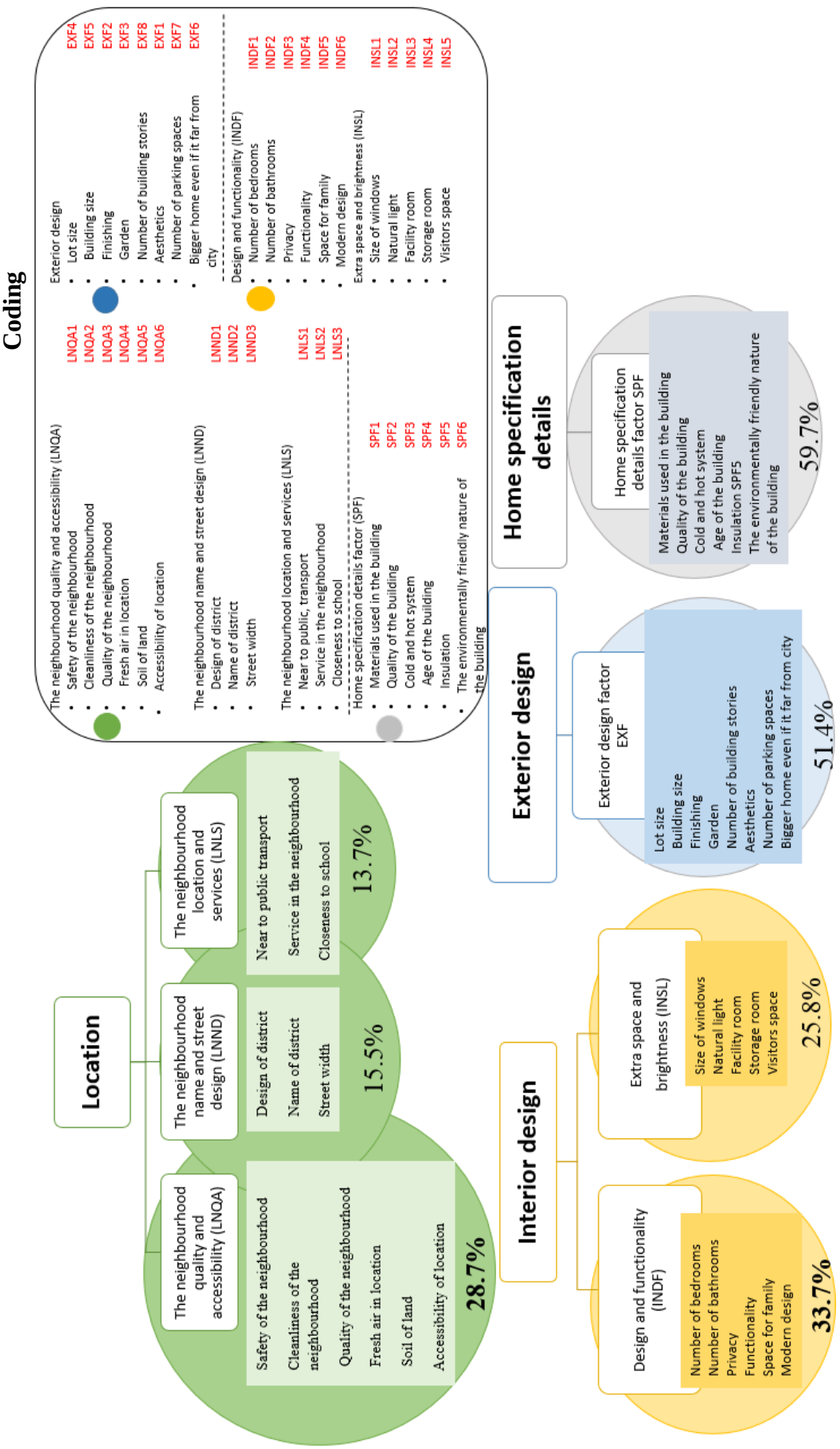

Figure 6-16 The component and coding

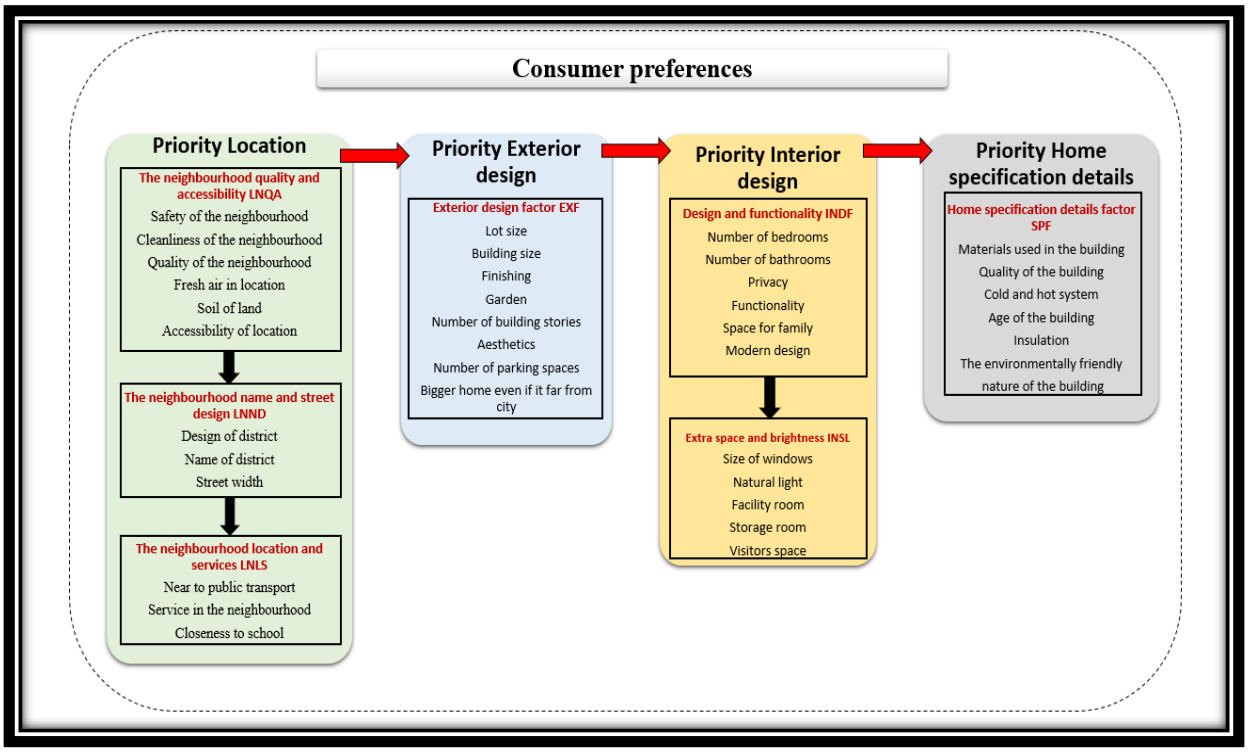

Figure 6-17 Model shows the groups for each factor from the consumer questionnaire

6.4.3.2.6 Integration of Both Consumers Models (A and B)

To identify the differences between consumer questionnaire models, the model of consumer preferences for all the factors is integrated with the model of different groups' preferences when buying a home (Figure 6.18). The first stage is the way to pay for a home, which is going to be cash, mortgage or loan from RFD. After that, there is an option to look at the properties of each factor alone (location-exterior design-interior design-home specification details) or look at the variables together.

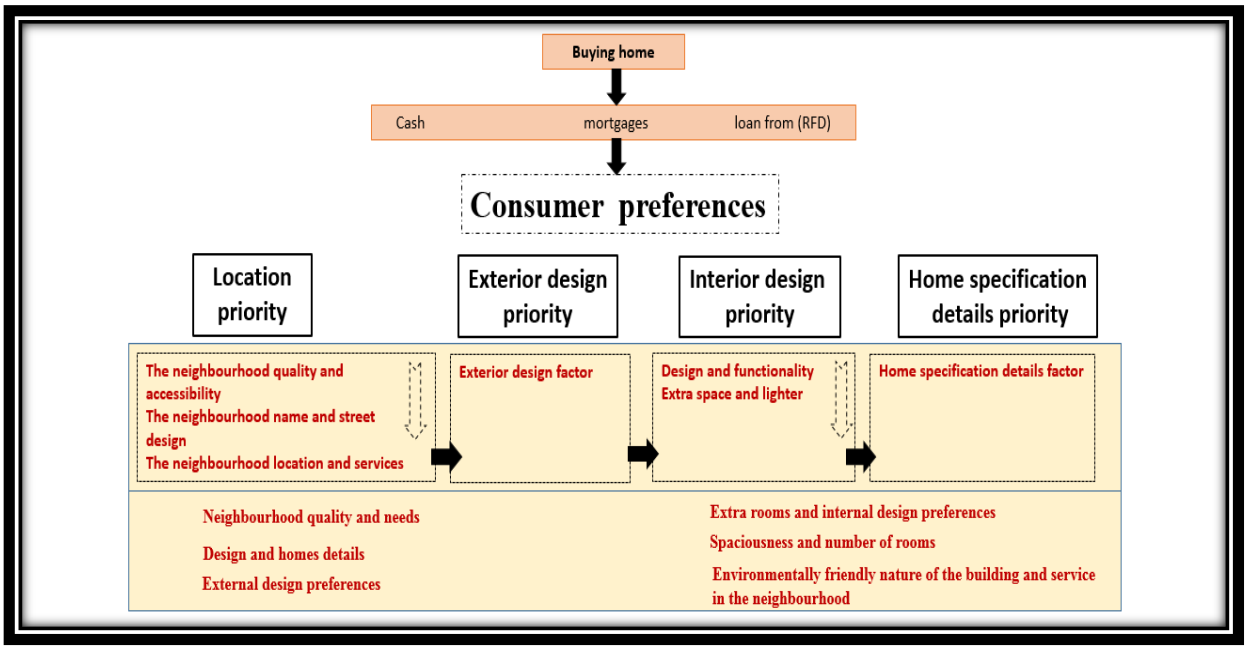

Figure 6-18 Model of consumer home preferences from the consumers' perspective integrating the two consumers' models

6.5 Summary of the Chapter

This chapter covers the results for the consumer questionnaire. It was found that 479 males and 273 females completed this questionnaire, and that about 77% of the respondents were aged between 20-40 years old; people of this age group are most in need of housing in Saudi. In addition, most of the respondents came from the main cities, which is to be expected because 80% of Saudis live in them.

Inferential analysis using Mann-Whitney and Kruskal-Wallis non-parametric tests was chosen to look for differences in the study. There was a statistically significant difference between genders for 30 factors. In the Mann-Whitney test, females gave different rankings than males for 11 preferences, which are Increase prices FF1, Financial risk FF2, The high interest FF5, Building own home FF11, Easy to open a real estate construction office FF12, Street width LF9, Name of district LF10, Number of parking spaces EXF7, House size, Number of rooms and Kitchen size.

On the other hand, the Kruskal-Wallis Test was used to find the differences between Saudi regions and the factors there was a significant difference in seven factors which are, Quality of the neighbourhood LF2, Cleanliness of the neighbourhood LF4, Name of district LF10, Soil of land LF13, Finishing EXF2, Privacy INF3 and Natural light INF11. In the test in each group of factors with regions there was a significant difference in one factor, which is Quality of the building SPF1, where the respondents from JAWF gave a statistically significant different score, high or low, compared with the other regions.

As a final test, factor analysis tests were run to regroup the variables to build up the models. However, the factor analysis for all the factors together in the consumer questionnaire comprised six components, three components in the location, two components in the internal

design, and one component in both the exterior design and home specification details. Moreover, the models of the home preferences were designed statistically.

Having analysed the consumer questionnaire data in this chapter and built and integrated the models, the research will now turn to an analysis of the professional questionnaire and interviews in the next chapter, in order to build the professional model.

Chapter 7: Data Analysis for the Professional Model

Chapter 7: Data Analysis for the Professional Model

7.1 Introduction

This chapter provides the data analysis for the professional result, starting with the professionals' questionnaire, by checking the reliability and the mean and then the normality of the data. Finding the mean provides the starting place for the descriptive statistics for all the factors, Financial, Location, External design, Interior design and Home specification details. This chapter will then look at the statistics test, to find out the Kruskal-Wallis Test used to compare more than two variables. The final stage in this chapter is the Factor Analysis, which is a method by which to regroup the variables to build up models, by getting new components to group the variables. Conducting research with a large sample size of a population leads to results that reflect the preferences of the assumed population. The professional respondents grouping meant people involved in housing from the following four groups: architects, construction experts, real estate developers and people who work in government bodies with responsibility for housing.

7.2 Professional Questionnaire Demographic Finding

With regard to ***education level***, the result in Table 7.1 shows that 85.2% of the respondents have a high level of education, which could lead to a high-quality result. The result also shows that about 2% have less than a high school education.

Table 7-1 Education level of the survey respondents

Education level	Percentage
Less Than High School	2.0
High School	6.9
Diploma	5.9
Bachelor	53.5
Post-Graduate	31.7

With regard to region, in the consumer questionnaire, although there was variety, about 77.8% of respondents were from the three main regions; in the professional questionnaire, the study

focused on the big cities, and, as about 60% of the population live in the three biggest regions (Riyadh – Makkah – Eastern Province), it was not surprising to find that 91.1% of the respondents are from these three areas.

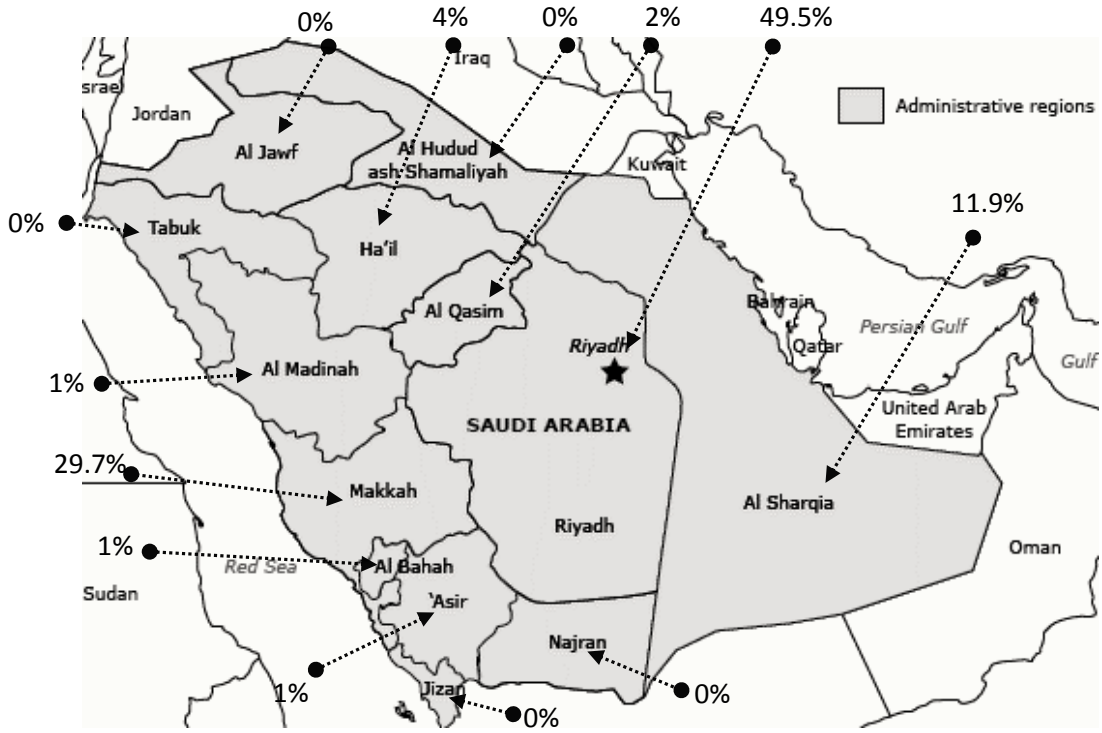

Figure 7-1 Survey respondents obtained from different regions in Saudi Arabia: Professionals

As part of the professional questionnaire, there was a question about ***professional work*** and from Table 7.2 below we can see that there is a good spread between the four options. About 30.7% work in a real estate office, 24.8% work in either a real estate development company or construction and design, whilst 17.8% work for the government.

Table 7-2 Professional work

Employment area	Percentage
Real estate office	30.7
Real estate development company	24.8
Construction and design	24.8
Government	19.8

The main question in the study concerned home preferences: ***what do you think is the most important factor for consumers in Saudi?*** (Price – Location – Interior Design – External Design); Table 7.3 shows that 44.6% of the respondents think internal design is most important for the consumers.

Table 7-3 Preferences that most affect buyers

Preferences	Percentage
Price	28.7
Location	25.7
Interior Design	44.6
External Design	1.0

Another question asked the professionals: ***to what extent do you feel the current housing provision in the market meets consumer preferences – does it comply with consumer preferences or not?*** With a scale from 1 (does not comply) to 9 (complies), Table 7.4 shows that about 40.6% of the respondents chose 6; however, 20.8% chose 5.

Table 7-4 Preferences most affecting buyers

Rate	Percentage
1	1.0
2	1.0
3	2.0
4	9.9
5	20.8
6	40.6
7	17.8
8	4.0
9	3.0

7.3 Professional Questionnaire Descriptive Analysis Finding

7.3.1 Financial Factor

In addition, the professional questionnaire also starts with the financial questions; the descriptive statistics in Figure.7.2 show with which variables in the financial factor respondents most agreed more than the others, by showing the number of responses. First comes the increase of land price, which is one of the reasons for the housing problem (FF8); the professionals strongly agreed that the land price is high and is the main reason for the housing

problem. Although the political situation in Saudi appears to be stable at present, professionals do not strongly agree it is a reason for the housing problem; even with the latest big changes in the royal family. Thirdly, the increase of prices in the housing market affects the Saudi citizens financially (FF1), and the professionals strongly agreed that this has an effect on potential house buyers. Then comes the real estate mortgages, which – although they could be the solution for those who do not have the cash to purchase homes (FF4) – have been shown in a report from Alrajhi Bank Capital (2013) to fund less than 20% of house buying, and are thus not helping to address the housing problem. The lowest two factors are building your own home is better than buying a home from a real estate developer (FF11), where building by individuals could affect the quality (Eng. Alajme), and the Ministry of Housing's work since 2011 has made a significant impact on the housing market (FF17). According to the Ministry, the work it has carried out in the last four years has had a positive impact, but some developers think it has had a negative impact. In the interview with Mr Alrasheed, he said everyone was waiting to see the Ministry's plans, but the delay in decision-making was exacerbating the housing problem.

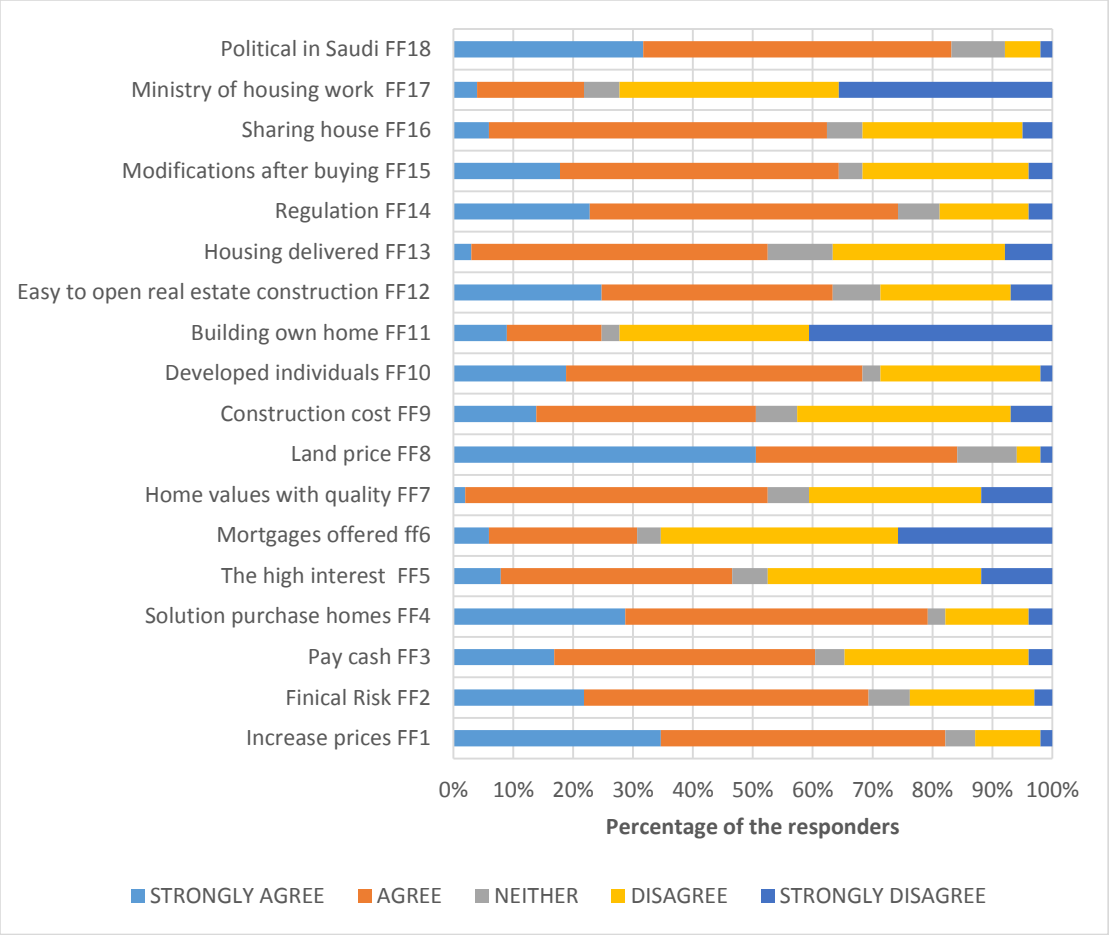

Figure 7-2 Comparison of descriptive statistics in the financial factor

The increase of real estate prices in Saudi Arabia in the last few years has brought about some changes in the society. In the questionnaire, the section about the financial factor and the effect of the price increase starts with: ***does the increase in prices in the housing market affect the Saudi citizens financially?*** About 34.7% strongly agreed with that and 47.5% agreed; that means 82.2% of the respondents think the increase in the price affects society. In addition, concerning whether purchasing or building a property with the increased prices is a financial risk, about 21.8% strongly agreed that it is risky and 47.5% agreed, which means in total 69.3% of the respondents think it is risky to purchase or build a property.

Paying cash is one of the common ways to buy property in Saudi; in the questionnaire about 16.8% of the respondents strongly agreed that consumers prefer to pay cash and about 43.6%

agreed. Considering that real estate mortgages could be the solution for those who do not have the cash to purchase homes, about 28.7% strongly agreed with the mortgages solution and 50.5% agreed. In total, 79.2% of respondents accept mortgages as a solution. Thinking about whether the high interest applied on mortgages is the reason for the lack of home mortgages, about 7.9% strongly agreed that there is high interest and 38.6% agreed. In total, 46.5% of respondents think the interest is high.

Considering whether the mortgages offered by the government and banks meet citizens' needs and preferences, about 25.7% strongly disagreed and 39.6% disagreed. In total, 65.3% of respondents think the mortgages offered by the government and banks do not match consumers' preferences. Thinking about whether the present house values are compatible with their quality, only about 2% strongly agreed and 50.5% agreed. In total, 52.5% of respondents think the house values are compatible with their quality.

Looking at the increase of land price as one of the reasons for the housing problem, about 50.5% strongly agreed and 33.7% agreed. In total, 84.2% of respondents think the increase of land price is one of the reasons for the housing problem. Considering whether the construction cost is one of the reasons for the housing problem, about 13.9% strongly agreed and 36.6% agreed. In total, 50.5% of respondents think the construction cost is one of the reasons for the housing problem. When deliberating about whether individuals mostly develop their own home in Saudi, about 18.8% strongly agreed and 49.5% agreed. In total, 68.3% of respondents think development by individuals is one of the reasons for the housing problem.

When thinking about whether building your own home is better than buying it from a real estate developer, about 40.6% strongly disagreed and 31.7% disagreed. In total, 72.3% of respondents think building your own home is not better than buying it from a real estate developer.

Looking at whether the quality of housing development in Saudi has been negatively affected because it is easy to establish a small estate and construction office, about 24.8% strongly agreed and 38.6% agreed. In total, 63.4% of respondents think that small companies affect the quality. Moreover, when thinking about whether the housing delivered to the real estate market suits citizens' preferences, about 3% strongly disagreed and 49.5% disagreed. In total, 53.5% of respondents think what is delivered to the real estate market is not suitable for consumers. Concerning whether the government regulations for designing and building property affect the home developers' ability to meet the consumers' preferences, about 22.8% strongly agreed and 51.5% agreed with them about the impact of government regulations.

When considering whether people make modifications to their homes after moving in, about 17.8% strongly agreed and 46.5% agreed. In total, 64.3% of respondents think people still make modifications to their homes after moving in. When addressing the issue of whether there is currently a tendency to go back to the extended family style of living, sharing the same house, about 5.9% strongly agreed and 56.4% agreed. In total, 62.3% of respondents think people are going back to the extended family style of living, sharing the same house.

Thinking about whether the work the Ministry of Housing has completed since 2011 has made a significant impact on the housing market, about 35.6% strongly disagreed and 36.6% disagreed. In total, 72.2% of respondents felt that the work the Ministry of Housing has completed since 2011 has not made a significant impact on the housing market.

When considering whether the political situation in Saudi is stable and encouraging for house purchase, about 31.7% strongly agreed and 51.5% agreed. In total, 83.2% of respondents think the political situation in Saudi is stable and encouraging for house purchase.

7.3.2 Location Factor

The second part of the professional questionnaire turned to the location preferences. Figure 7.3 shows that the professionals selected neighbourhood services (LF6) is the most important variable for homebuyers. This is followed by closeness to relatives and family (LF1). In the interview with Mr Alrasheed, he said that new families now prefer to live in new neighbourhoods rather than living in the old neighbourhoods with their families. The lowest two variables are the soil of the land (LF13), which relates to the home's location – whether or not the land on which it is built is prone to flooding – and how near the location is to public transport (LF7), which would be expected to be at the end of the list because of the lack of public transport in Saudi Arabia.

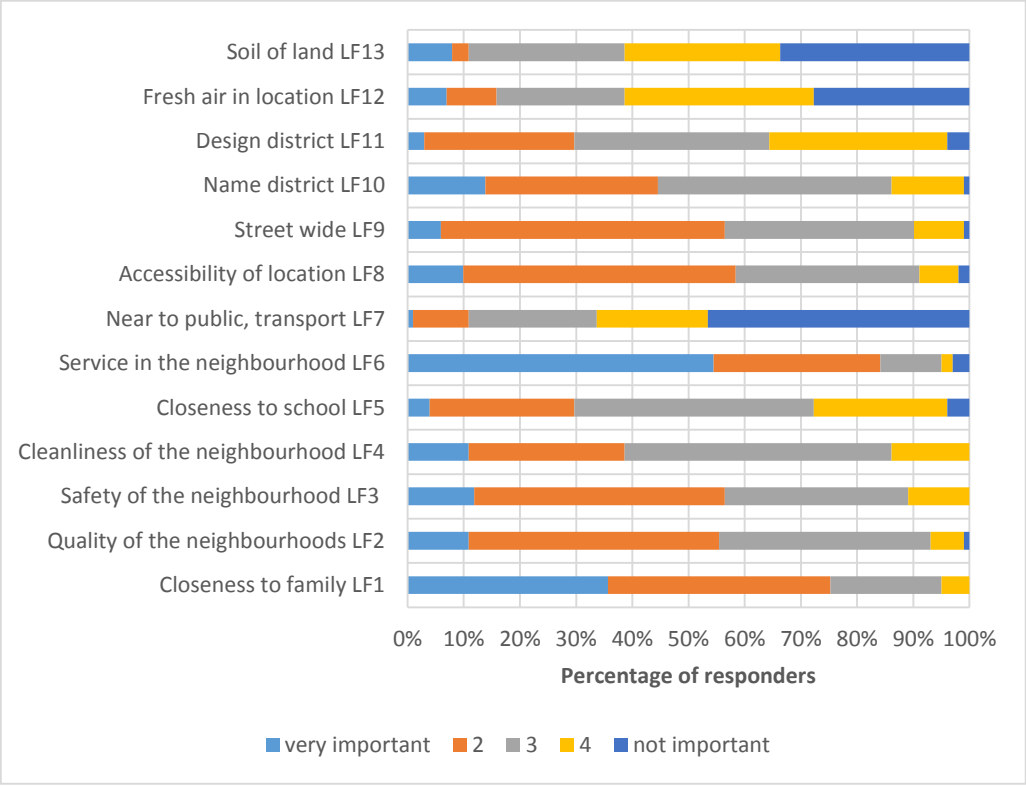

Figure 7-3 Comparison of descriptive statistics in the location factor

7.3.3 External Design Factor

The third part considered the external design preferences. Figure 7.4 shows the aesthetics and building design (EXF1) – what the building looks like from outside – is the first preference for the homebuyer, according to the responses to the professional questionnaire. Next is the type and quality of finishing, such as painting and flooring (EXF2). In the interview with Mr Alnouahel, he said that the Ministry of Housing considers the face and finishing as important consumer preferences, and they try to apply that in their projects. The lowest two variables are the size of the garden and courtyard (EXF3), , because people don't go outside when it is very hot. Finally, the number of parking spaces (EXF7).

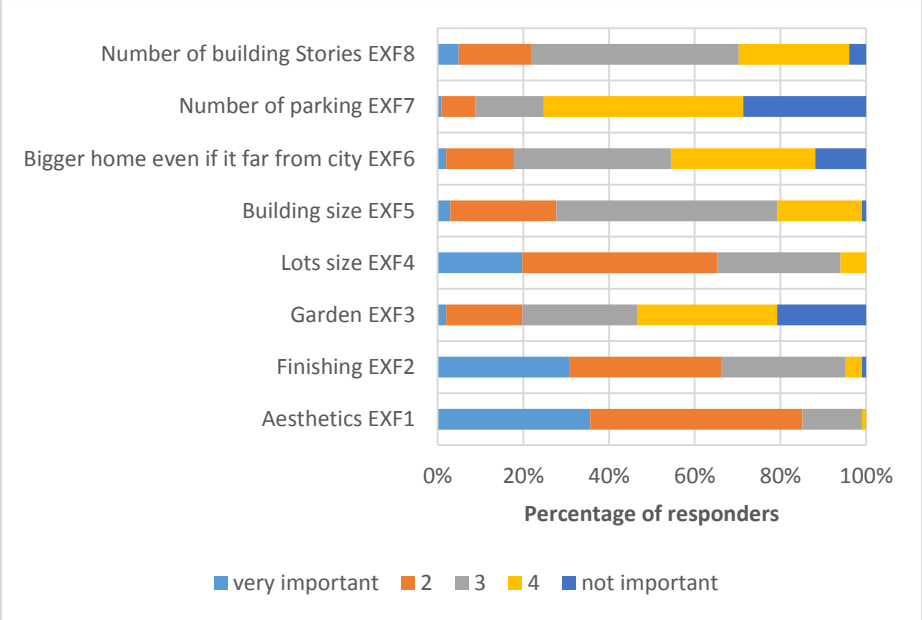

Figure 7-4 Comparison of descriptive statistics in the external design factor

7.3.4 Interior Design Factor

The interior design preferences was the fourth part of the professional questionnaire. Figure 7.5 shows that the functionality and spaciousness (INF1) of the design is the variable the professionals thought would be most important to the homebuyers, where having the right home design at the beginning means that homebuyers can avoid making changes after they

have moved in. Having a modern design (INF2), such as an open kitchen and open spaces, is also important for homebuyers, especially those with young families (Eng. Alajme). The lowest two are the natural light (INF11) and, finally, the size of the windows (INF10).

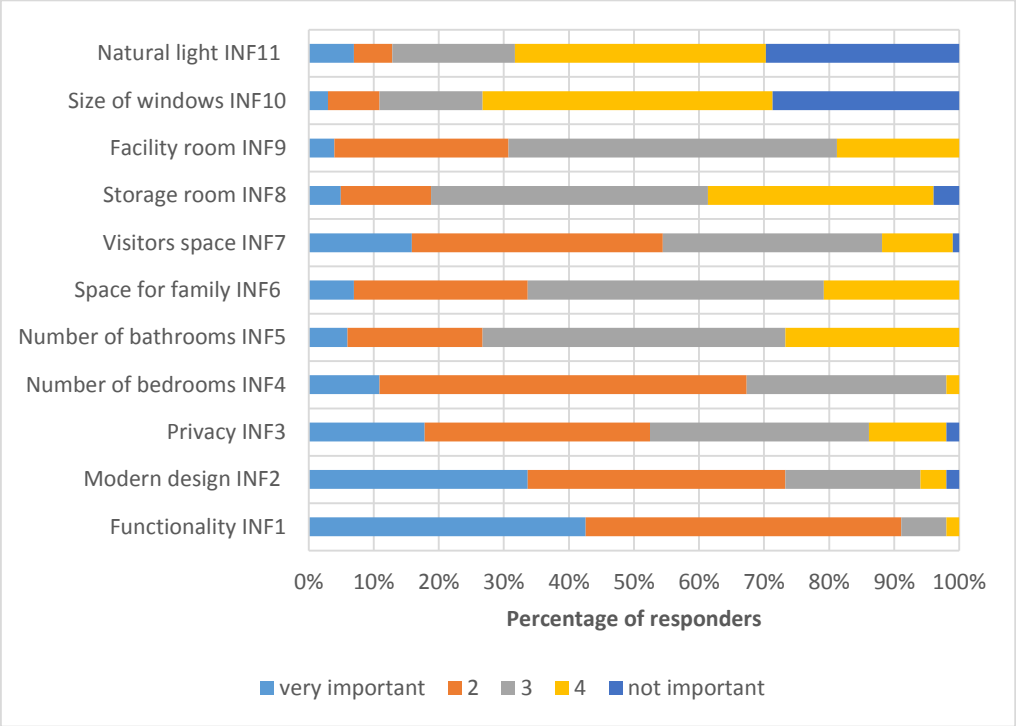

Figure 7-5 Comparison of descriptive statistics in the interior design factor

With regard to the interior design factor (Table 7.5), the questionnaire asked some more questions about the preferred house size, the size and number of bedrooms, the kitchen size and the living room size. For the house size, it is clear that almost half of the respondents (48.5%) think consumers prefer a house size of between 250 m to 300 m, whereas only 7.9% think 500 m to 700 m is preferred. In the interview with Mr Alrasheed, he stated that, with the increase of the house prices, 300 m to 500 m is a good size.

Table 7-5 House size

Sizes	Percentage
150-200	11.9
250-300	48.5
350-450	31.7
500-700	7.9

With regard to the size of bedrooms (Table 7.6), it is clear that most of the respondents (68.3%) think buyers prefer the bedroom size to be 4*4m, whereas only 1% think buyers prefer 3*3m. It has been previously suggested that design elements in a 4*4m bedroom could meet the buyers' requirements (Nuefert, 2013).

Table 7-6 Size of bedrooms

Sizes	Percentage
3*3	1.0
3*4	11.9
4*4	68.3
4*5	15.8
5*5	3.0

For the number of bedrooms (Table 7.7), it is clear that just over half of the respondents (55.4%) think buyers prefer to have three bedrooms, whereas only 5% think two bedrooms is enough. In the consumer questionnaire, most of the respondents chose five as the best option, which may be due to the average Saudi family size (six members), where three bedrooms may not be enough.

Table 7-7 Number of bedroom

Numbers	Percentage
2	5.0
3	55.4
4	31.7
5	7.9

With regard to the size of the kitchen (Table 7.8), it is clear that just under half of the respondents (40.6%) think buyers prefer the kitchen size to be 4*4m, whereas only 5% think buyers prefer 5*5m.

Table 7-8 Size of kitchen

Size	Percentage
3*3	9.9
3*4	38.6
4*4	40.6
4*5	5.0
5*5	5.9

For the size of the living room (Table 7.9), it is clear that nearly two-thirds of the respondents (61.4%) think buyers prefer the living room size to be 4*4m, whereas only 8.9% think 5*5m is enough for buyers.

Table 7-9 Size of living room

Sizes	Percentage
3*4	11.9
4*4	61.4
4*5	17.8
5*5	8.9

7.3.5 Home Specification Details

In terms of preference for home specification details, Figure 7.6 shows that quality of the building is the variable (SPF1) the professionals think is most important for the homebuyers, whereas in the consumer questionnaire the respondents chose the variable that the quality does not fit with the home's value. The professionals then selected the age of the building (SPF2), where the age of the home is linked to its quality. The lowest two are the cold and heating system in the building (SPF6) and, finally, the environmentally friendly nature of the building (SPF3), where the consumers have the same view.

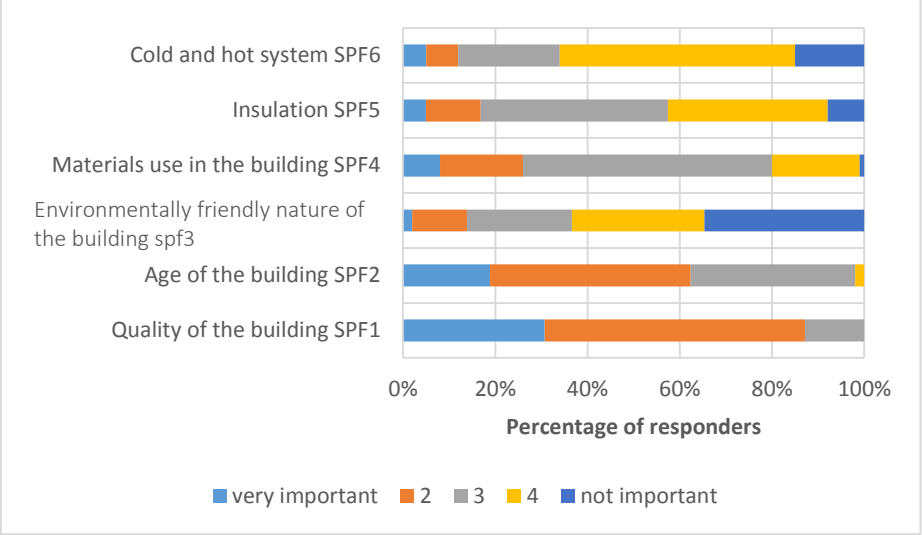

Figure 7-6 Comparison of descriptive statistics in the home specification details factor

7.4 Professionals Questionnaire Inferential Analysis

7.4.1 Kruskal-Wallis Test

- **Professionals' Home Preferences by their Job Area**

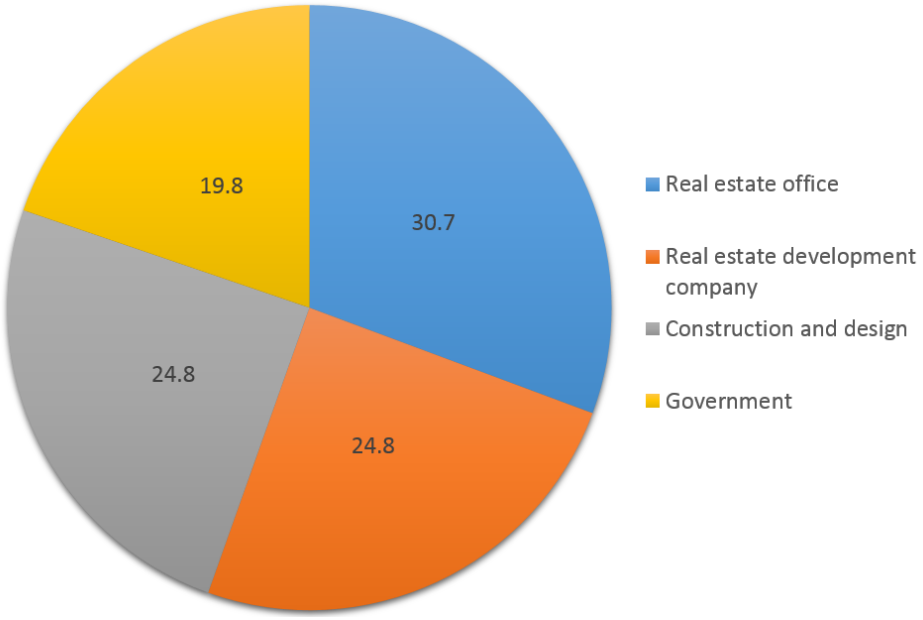

Figure 7-7 Professionals' jobs area in %

This part of the analysis looks at the research question: ***is there a difference in any of the preferences in relation to the professionals' jobs (real estate office/real estate development company/construction and Design Company/government)?***

The Kruskal-Wallis output (Table 7.10, presented below) revealed that there was a statistically significant difference between the preferences when analysed by the professionals' employment area. The following variables were less than the alpha level of .05, so these results suggest that there is a difference across the different groups:

- Location factor (LF3/LF6).
- External design factor (EXF4).
- Internal design factor (INF1/INF2/INF3/INF4/INF5).
- Home specification details (SPF2).

Table 7-10 Test statistics

Variables	Asymp. Sig.
Safety of the neighbourhood LF3	.012
Service in the neighbourhood LF6	.005
Lot size EXF4	.042
Functionality INF1	.007
Modern design INF2	.000
Privacy INF3	.001
Number of bedrooms INF4	.013
Number of bathrooms INF5	.000
Age of the building SPF2	.008

If this significance level (Asymp) value is less than .05, then it can be concluded that there is a statistically significant difference in the variable across the groups.

Post Hoc Test

In order to identify the differences between the groups, a post hoc Mann Whitney test was applied, using the formula/number of comparisons required: 4 (4-1)/2 = 6/Bonferroni adjustment: 0.05/6 = 0.0083 new alpha.

- Table 7.11 shows that many factors have a significant result with the new level of 0.0083.

- The post hoc Mann-Whitney test revealed that, for Safety of the neighbourhood LF3, which addresses safety of the site and the multiplicity of ways of providing safety in the neighbourhood, and includes the security of the neighbourhood (Jabareen, 2005), the output shows a statistically significant difference between employees who work in the government and people who work in a real estate office. Respondents working for the government gave statistically significantly higher rankings of importance to this variable compared to those working within a real estate office at sig .001 (P = < 0.0083). This could be because staff in the real estate offices do not see it as a main question when homebuyers enquire about homes, because the normally ask for a particular neighbourhood first.

- For Services in the neighbourhood LF6, which is the services provided in the neighbourhood, which is an important feature, and the presence of shops, restaurants, playground area for children and a library (Reed, 2007), the output shows a statistically significant difference between employees who work in the government and people who work in a development company. Respondents working in a development company gave

statistically significantly higher rankings of importance to this variable compared to those working within the government at sig .001 (P = < 0.0083). It is possible that the developers gave this variable a higher score because from their work they know how important the neighbourhood services are.

- For Lot size EXF4, the size of the land for the house is a feature that gives more space to a home, and the possibility of having extensions and expansion in the future (Bahammam, 2001), and people normally prefer a large lot size. The result shows a statistically significant difference between employees who work in construction and people who work in a real estate office. Respondents working in construction gave statistically significantly higher rankings of importance to this variable compared to those working within a real estate office at sig .001 (P = < 0.0083). This could be linked to building size and cost, which real estate office staff are not expert in.

- Functionality INF1 addresses the functionality and spaciousness of the design and how suitable and comfortable it is. The architectural design of the building is one of the most important elements in its construction (Hofman, 2006). This could be the reason why people who work in a development company, which deliver homes, gave statistically significantly higher rankings of importance to this variable compared to those working within the government and real estate offices. Respondents working in a development company gave statistically significantly higher rankings of importance to this variable compared to those working within the government and real estate offices at sig .001 (P = < 0.0083).

- For Modern design INF2, designers have started to create modern designs for homes, which are open space, and give a full view of the home elements. However, some consumers still prefer traditional designs and the full separation of design elements (Gibler, et al., 2014), which may be the reason why the people who work in the government gave statistically

significantly lower rankings of importance to this variable compared with respondents working in construction and development companies. Respondents working in a construction and development company gave statistically significantly higher rankings of importance to this variable compared to those working within the government at sig .001 (P = < 0.0083).

- Privacy INF3 means that the building design may contribute to providing privacy to the house, where the design and location of windows contribute to give privacy from neighbours also visitors (Gibler et al., 2014). There was a statistically significant difference between employees who work in the government and people who work in construction. Respondents working in the government gave statistically significantly higher rankings of importance to this variable compared to those working within a construction at sig .001 (P = < 0.0083). It may be that government employees are working in the housing sector such as in the Ministry of Housing, which may give them more understanding of the importance of privacy.

- For Number of bedrooms INF4, it has been stated that most consumers want a large number of bedrooms and prefer to increase the number of bedrooms in their homes (Al-Otaibi, 2004). There was a statistically significant difference between employees who work in the government and people who work a real estate office. Respondents working in the government gave statistically significantly higher rankings of importance to this variable compared to those working within a real estate office at sig .001 (P = < 0.0083). As the government employees are working in the housing sector, such as in the Ministry of Housing, this may give them more understanding of the importance of having a high number of bedrooms.

- For Number of bathrooms INF5, it has been found that the number of bathrooms matters to consumers (Al-Otaibi, 2004). There was a statistically significant difference between employees who work in the government and people who work in construction, a real estate office and a development company. Respondents working in government gave statistically significantly higher rankings of importance to this variable compared to those working within a construction, real estate office and development company at sig .001 (P = < 0.0083). There was also a statistically significant difference between employees who work in a development company and people who work in a real estate office, as the former gave statistically significantly higher rankings of importance to this variable at sig .001 (P = < 0.0083). Working in the government or a development company may increase respondents' understanding of the importance of the number of bathrooms.

- Age of the building SPF2 explores the importance of the age of the house. For example, in European countries a building's age gives it a historical advantage (Vedia DoÈkmeci, 2000), whilst in other countries an older building's quality may be negatively affected. This might be why respondents working in the government gave statistically significantly higher rankings of importance to this variable. The result shows a statistically significant difference between employees who work in the government and people who work in a real estate office. Respondents working in the government gave statistically significantly higher rankings of importance to this variable compared to those working within a real estate office at sig .001 (P = < 0.0083).

Table 7-11 Test statistics

Variables	Jobs	Sig	Adj.Sig.
Safety of the neighbourhood LF3	Government - Real estate office	.001	.007
Services in the neighbourhood LF6	Development company- Government	.001	.005
Lot size EXF4	Construction - Real estate office	.002	.025
Functionality INF1	Development company - Government	.002	.022
	Development company - Real estate office	.002	.016
Modern design INF2	Construction - Government	.000	.000
	Development company - Government	.000	.001
Privacy INF3	Government - Construction	.000	.001
Number of bedrooms INF4	Government - Real estate office	.001	.007
Number of bathrooms INF5	Government - Construction	.000	.000
	Government - Real estate office	.000	.000
	Government - Development company	.000	.003
	Development company - Real estate office	.000	.003
Age of the building SPF2	Government - Real estate office	.002	.022

- **Each Group of Preferences With the Job Area for the Professionals**

This section looks at the research question: ***is there a difference between preferences in each factor, across the professionals' jobs (real estate office/real estate development company/construction and design company/government)?***

Table 7.12 presents the significance levels for Kruskal-Wallis output, if they are less than the alpha level of .05, so these results suggest that there is a difference across the different groups.

- Location (LF6 0.005).
- External design (EXF4 0.042)
- Internal design (INF1 0.007 – INF3 0.001 – INF4 0.013)

Table 7-12 Test statistics

Variables	Asymp. Sig.
Service in the neighbourhood LF6	.005
Lot size EXF4	.042
Functionality INF1	.007
Privacy INF3	.001
Number of bedrooms INF4	.013

If this significance level (Asymp) value is less than .05, then it can be concluded that there is a statistically significant difference in the variable across the groups.

Post Hoc Test

In order to identify differences between the professional respondents, a post hoc Mann Whitney test, using the formula/number of comparisons was required: 4 (4-1)/2 = 6

Bonferroni adjustment: 0.05/6 = 0.0083 new alpha

- Table 7.13 shows that many factors have a significant result with the new level of 0.0083.

- The post hoc Mann-Whitney test revealed that, for Services in the neighbourhood LF6, there was a statistically significant difference between employees who work in the government and people who work in a development company. Respondents working in a development company gave statistically significantly higher rankings of importance to this variable compared to those working in the government at sig .001 (P = < 0.0083). It could be that the developers gave a higher score for this variable because, from their work, they know how important the neighbourhood services are.

- For Lot size EXF4, there was a statistically significant difference between employees who work in construction and people who work in a real estate office. Respondents working in construction gave statistically significantly higher rankings of importance to this variable compared to those working in a real estate office at sig .001 (P = < 0.0083). This could be linked to building size and cost, which real estate office staff are not expert in.

- For Functionality INF1, there was a statistically significant difference between employees who work in a development company and people who work in the government and real estate offices. Respondents working in a development company gave statistically significantly higher rankings of importance to this variable compared to those working within government and real estate offices at sig .001 (P = < 0.0083). Employees working in a development company have more experience about the design element, as some of them are architects.

- For Privacy INF3, there was a statistically significant difference between employees who work in construction and people who work in the government. Respondents working in the

government gave statistically significantly higher rankings of importance to this variable compared to those who work in construction at sig .001 (P = < 0.0083). This may be because government employees are working in the housing sector, such as in the Ministry of Housing, which may give them more understanding of the importance of privacy .

- For Number of bedrooms INF4, there was a statistically significant difference between employees who work in the government and people who work in a real estate office. Respondents working in the government gave statistically significantly higher rankings of importance to this variable compared to those who work in a real estate office at sig .001 (P = < 0.0083).

Table 7-13 Test statistics

Variables	Jobs	Sig	Adj.Sig.
Services in the neighbourhood LF6	Development company- Government	.001	.005
Lot size EXF4	Construction - Real estate office	.002	.025
Functionality INF1	Development company - Government	.002	.022
	Development company - Real estate office	.002	.016
Privacy INF3	Government - Construction	.000	.001
Number of bedrooms INF4	Government - Real estate office	.001	.007

7.5 Analysis of the Professional Interviews

The interviews were conducted with professionals in different fields, to ascertain their views about the results of the questionnaires. Table 7.14 shows the matrix of the interviews, including the codes that the interviews focused on and which code each participant mentioned. These codes are the variables from which the questionnaire was designed, and they note when each one was used in the interviews.

Table 7-14 Matrix of the interviews, codes and which professionals mentioned them

The codes	Participants		
	Participant (A)	Participant (B)	Participant (C)
Increase prices FF1	✓		
Financial risk FF2		✓	
Pay cash FF3			✓
Solution: purchase homes FF4		✓	
The high interest FF5			✓
Mortgages offered FF6		✓	✓
Home values with quality FF7	✓		
Land price FF8	✓	✓	
Construction cost FF9	✓		
Developed by individuals FF10	✓	✓	
Building own home FF11	✓		
Easy to open a real estate construction office FF12	✓		
Housing delivered FF13		✓	
Regulation FF14	✓	✓	✓
Modifications after buying FF15	✓		
Sharing house FF16	✓		
Ministry of Housing work FF17		✓	✓
Political situation in Saudi FF18		✓	✓
Closeness to family LF1			✓
Quality of the neighbourhood LF2	✓		✓
Safety of the neighbourhood LF3		✓	
Cleanliness of the neighbourhood LF4		✓	
Closeness to school LF5		✓	
Services in the neighbourhood LF6	✓	✓	
Near to public transport LF7		✓	
Accessibility of location LF8	✓		✓
Street width LF9	✓		✓
Name of district LF10			✓
Design of district LF11		✓	✓
Fresh air in location LF12	✓		
Soil of land LF13	✓	✓	
Aesthetics EXF1	✓	✓	
Finishing EXF2		✓	
Garden EXF3		✓	
Lot size EXF4	✓	✓	✓
Building size EXF5	✓	✓	
Bigger home even if it is far from a city EXF6		✓	✓
Number of parking spaces EXF7	✓	✓	
Number of building storeys EXF8	✓	✓	
Functionality INF1	✓		
Modern design INF2		✓	
Privacy INF3	✓		
Number of bedrooms INF4		✓	✓
Number of bathrooms INF5		✓	✓
Space for family INF6		✓	
Visitors' space INF7	✓	✓	
Storage room INF8		✓	
Facility room INF9		✓	
Size of windows INF10	✓		
Natural light INF11		✓	
Quality of the building SPF1	✓		
Age of the building SPF2	✓	✓	✓
The environmentally friendly nature of the building SPF3		✓	
Materials used in the building SPF4	✓	✓	
Insulation SPF5	✓		
Cold and hot system SPF6	✓		

Figure 7.8 shows the topics in which each interviewee was interested; for example, civil engineer (A) discussed the quality of the design, linking it directly to government regulations on the quality of homes, which he thinks is one of the main reasons for the lack of quality in Saudi homes, because it is easy to open construction companies in Saudi Arabia. However, the government could threaten the contractors by using laws and controls where it an important solution to the weakness in quality.

Participant (A), said people generally do not trust development companies, which has led to individuals developing their own homes, which constitutes more than 90% of home development. Ten years ago, the cost of constructing a building ranged from 60% to 70% of the project, now the land itself costs 60% to 70%. Whilst between 1985 and 2005, the price of land did not change dramatically – the price per square metre was between SR400 and SR500 – the high price of oil in 2005, and the monopoly of land contributed to significant rises in land prices.

The real estate developer, participant (C), spoke about difficulties facing the property market from the government and consumers; however, he had a different view about the home prices, where he said that the consumer's culture has a big effect on home preferences. However, participant (C), said that decisions like land fees are difficult to undo or alter after application, where the land fee is not a solution to the problem of rising prices, and any decision needs to be through an in-depth study of all the positive and negative aspects.

Moreover, participant (c), said that one of the most important solutions is to facilitate government steps, in terms of dealing with municipalities, which takes a long time, where the permission to put the infrastructure in place takes two to four years, and these measures have made people unwilling to develop the land. Furthermore, the development costs the real estate development companies SR60 to SR150 per m^2.

Participant (B), as an employee at the Ministry of Housing, discussed the work of the Ministry and how it is trying to address the housing problem, linking consumer needs in regard to location and internal and external design. However, participant (B), said that the infrastructure development costs the Ministry of Housing SR300 per m^2, which includes pavements, lighting, and sanitation. In some of the projects, the services take up to 40% of the total land size. The Ministry is currently working on the infrastructure at some of the sites to be presented and distributed to citizens by the Ministry's programme, where they will not develop residential villas. Furthermore the biggest demand for housing units is in the major areas: Riyadh, Makkah and the Eastern Province. With regard to the demand in big cities, participant (B) said that stopping migration to the big cities is important in addressing the housing problem. Returning to the old neighbourhoods and re-developing them is better than developing new neighbourhoods.

Moreover, in relation to the home design, participant (A) said that changes in citizens' culture are having an important influence on design, where there are lost spaces in design because of these behaviour changes; for example, now there is no need for a visitors' room, but it is a cultural thing to have one. Furthermore, participant (B) said that the Ministry has developed a sample house design, and it will be applied in all the projects according to specific criteria. However, the Ministry of Housing is also attempting to create 'out of the ordinary' designs and increase the number of green spaces. However, Participant (C) said that consumer behaviour has now changed and their preferences are different. (The full transcript of the interviews can be found in Appendix 2).

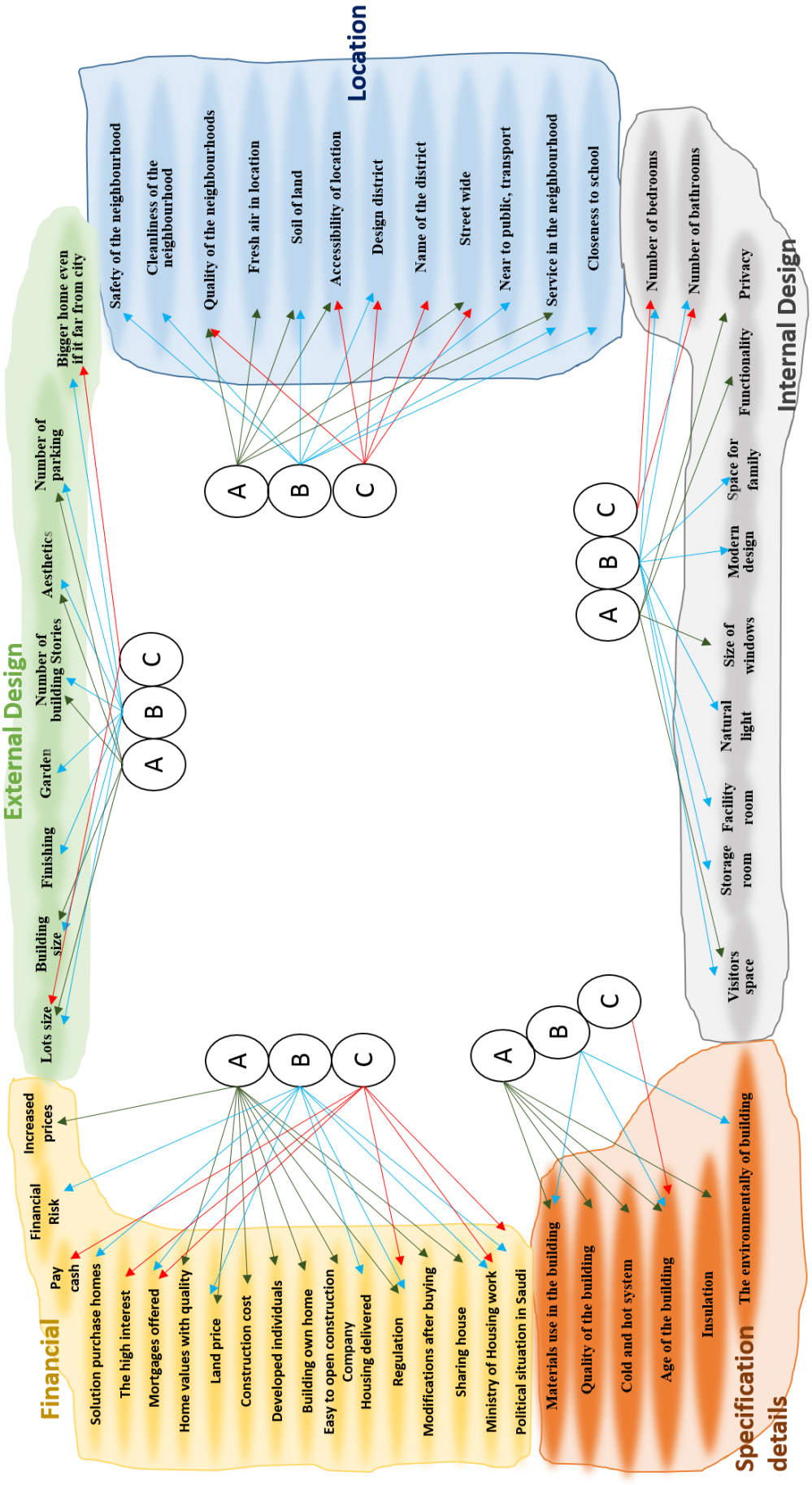

Figure 7-8 Representation of variables discussed by interviewees

7.5.1 Factor Analysis Test for All the Home Preference Variables

Test Question

- *What are the highest consumer preference factors in the professional questionnaire?*

The Reliability

In Table 7.15, Cronbach's alpha coefficient is above .7 for all the factors, which indicates that our sample is reliable (Field, 2013).

Table 7-15 Component reliability coefficients

Professional questionnaire	Number of items	Items dropped	Cronbach's alpha	When the alpha is 0.7 or higher, it means the consistency of the component is acceptable.
The location and specification details factor	13	-	.778	
The external design factor	8	-	.729	
The internal design factor	10	1	.703	
The district and street lot	6	-	.804	

The Kaiser-Meyer-Olkin Value

In Table 7.16, the KMO is above .6 for both questionnaires, which indicates that our sample has a great result (Field, 2013).

Table 7-16 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy for professional questionnaire		.750	Values 0.5 as acceptable. Values between 0.5 and 0.7 are good. Values between 0.7 and 0.8 are great. Values above 0.8 are superb.
Bartlett's Test of Sphericity	Approx. Chi-Square	4755.314	
	df	666	
	Sig.	.000	

7.5.1.1 Professional Factor Analysis Test for All the Variables

In Table 7.17 below, each component is set according to a series of correlations between different preferences. Thus, it shows how correlated a preference could be to other factors. The first column, Initial Eigenvalues, relates to the eigenvalue of the correlation matrix and indicates which components of the table remain in the analysis. To carry out the factor analysis, only components with eigenvalues of more than 1 are selected and those with eigenvalues of

less than 1 are excluded. The initial and rotated eigenvalues are used to confirm the variation explained by each preference's components. Lower values indicate that the contribution to the explanation of the variances in the set of the preferences survey attributes is minimal.

Table 7-17 Total variance explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.632	26.033	26.033	6.615	17.878	17.878
2	3.599	9.727	35.760	4.268	11.536	29.414
3	2.739	7.402	43.162	2.979	8.052	37.466
4	1.999	5.404	48.566	2.293	6.199	43.664
5	1.900	5.135	53.701	1.975	5.338	49.002
6	1.838	4.969	58.669	1.911	5.164	54.167
7	1.561	4.218	62.888	1.814	4.902	59.069
8	1.342	3.628	66.516	1.810	4.892	63.961
9	1.153	3.116	69.631	1.586	4.285	68.247
10	1.071	2.894	72.525	1.583	4.278	72.525

For example, in Table 7.17 the initial eigenvalue of the first financial preference is 9.632. Hence, the proportion of the total test variance accounted for by the first factor is 26% (the figure given in the % of variance column). In this analysis for the Principal Axis Factoring of occurrence, just 10 components carry eigenvalues of 1 and more, and account for 72.2% of the variance, as shown in the cumulative % column. This means that the selected 10 components present 72.2% of the whole variance. Therefore, the 10 components can be considered as representative of 38 consumer preferences. The following scree plot of data is another way of presenting the most important factors of the study.

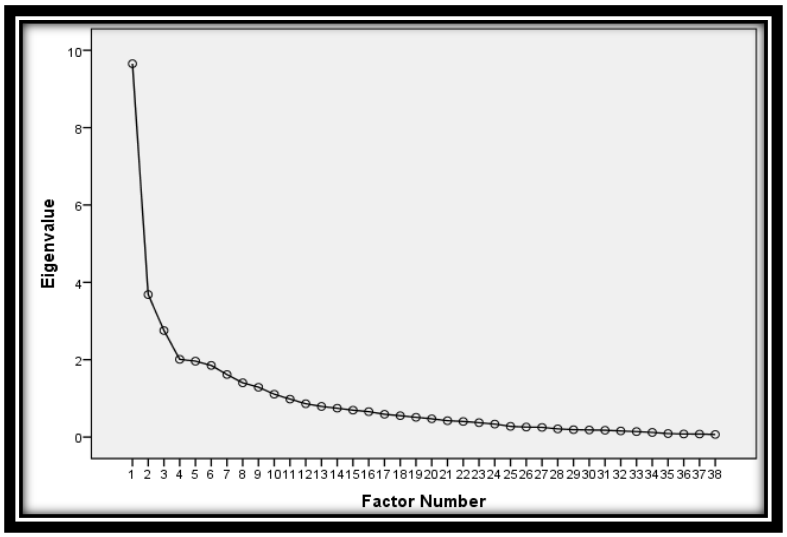

Figure 7-9 Scree plot for all the home preference variables

Figure 7.9 above shows that the slope of the scree is levelling off, while moving towards components with an eigenvalue of less than 1. The point of interest is defined between components 3 and 4, where the figure curve connects to the points, starting to flatten out and become horizontal. From principal component analysis, 10 components that have an eigenvalue of more than 1 are selected. The next phase is the extraction of a rotated component matrix for finding out which consumer preferences are contributing the highest level of influence, as shown in Table 7.18 below. The matrix loading score presented shows the degree of influence of each consumer preference in the survey. This factor loading tells us about the relative contribution that a variable makes to a factor. From Table 7.18, it can be seen that the preference the Cold and hot system (SPF6 .827) has greater influence on component 1 compared to other components, whereas the preference Soil of land (LF13 .709) has more influence on component 2 in relation to other components, and the Accessibility of location (LF8 .832) has more influence on component 3 in relation to other components.

Table 7-18 Rotated component matrix[a]

The variables	Component									
	1	2	3	4	5	6	7	8	9	10
Cold and hot system SPF6	.827									
Insulation SPF5	.787									
Cleanliness of the neighbourhood LF4	.691			.310						
Storage room INF8	.680									
Materials used in the building SPF4	.674	.310								
Size of windows INF10	.669	.323								
Natural light INF11	.658	.330					.340			
Space for family INF6	.619								-.313	
Facility room INF9	.570					.306				
Fresh air in location LF12	.564	.508								-.347
Quality of the neighbourhood LF2	.545	-.349		.301						
Safety of the neighbourhood LF3	.531							.336		
Design of district LF11	.529		.314				-.374	-.310		
Number of parking spaces EXF7		.709								
Soil of land LF13	.321	.709								
Number of building storeys EXF8		.689					.342			
The environmentally friendly nature of the building SPF3		.584	-.487							
Number of bathrooms INF5		.569				.503				
Garden EXF3		.552			.409					
Near to public transport LF7		.550			.348					.348
Accessibility of location LF8			.832							
Street width LF9			.803							
Finishing EXF2			.487	.380	.406					
Closeness to family LF1				.721	.310					
Functionality INF1				.662				.324		
Quality of the building SPF1	.372			.601						
Age of the building SPF2	.303	.422		.430						
Aesthetics EXF1					.852					
Number of bedrooms INF4						.777				
Privacy INF3						.680				
Building size EXF5							.742			
Lot size EXF4			.469				.588			
Modern design INF2					.304			.748		
Name of district LF10			.382					.673		
Bigger home even if it is far from a city EXF6									.843	
Service in the neighbourhood LF6			.398							.786
Closeness to school LF5	.460				.307					.530

The most important and influential preferences of each component are extracted to form a reduced list of preferences, which is highly manageable without losing a large amount of data. By applying factor analysis and data reduction in this survey, the 38 questions asking professionals about consumer preferences are reduced to 10 components, as shown in Table 7.19, which identifies the professional preferences, which are groupings of preferences from the 38 initially identified. Factor analysis takes places after eigenvalues in excess of 1 are extracted, leaving a total of ten. The table reports both the variance explained by these retained factors from the total variance of all 38 preferences factors as well as the factor loadings (and

their variances) following varimax rotation in which the variance of each of the factors is maximised.

Table 7-19 New group of variables

Component	Rotated Component Matrix[a]	Code	Extracted eigenvalue	component weight %
The quality of design, the buildings and neighbourhood (QDBN)	Cold and hot system SPF6 Insulation SPF5 Cleanliness of the neighbourhood LF4 Storage room INF8 Materials used in the building SPF4 Size of windows INF10 Natural light INF11 Space for family INF6 Facility room INF9 Fresh air in location LF12 Quality of the neighbourhood LF2 Safety of the neighbourhood LF3 Design of district LF11	QDBN1 QDBN2 QDBN3 QDBN4 QDBN5 QDBN6 QDBN7 QDBN8 QDBN9 QDBN10 QDBN11 QDBN12 QDBN13	9.632	17.878
The environmentally friendly nature of the building and location (EBL)	Number of parking spaces EXF7 Soil of land LF13 Number of building storeys EXF8 The environmentally friendly nature of the building SPF3 Number of bathrooms INF5 Garden EXF3 Near to public transport LF7	EBL1 EBL2 EBL3 EBL4 EBL5 EBL6 EBL7	3.599	11.536
Finish and street location (FSL)	Accessibility of location LF8 Street width LF9 Finishing EXF2	FSL1 FSL2 FSL3	2.739	8.052
Building functionality and location (BFL)	Closeness to family LF1 Functionality INF1 Quality of the building SPF1 Age of the building SPF2	BFL1 BFL2 BFL3 BFL4	1.999	6.199
External aesthetics (EA)	Aesthetics EXF1	EA1	1.900	5.338
Privacy and rooms (PR)	Number of bedrooms INF4 Privacy INF3	PR1 PR2	1.838	5.164
External sizes (ES)	Building size EXF5 Lot size EXF4	ES1 ES2	1.561	4.902
Modern district (MD)	Modern design INF2 Name of district LF10	MID1 MID2	1.342	4.892
Bigger homes (BH)	Bigger home even if it is far from a city EXF6	BH1	1.153	4.285
Services in the neighbourhood (SN)	Service in the neighbourhood LF6 Closeness to school LF5	SN1 SN2	1.071	4.278

Component 1 (The Quality of Design, the Buildings and Neighbourhood QDBN)

This component has an eigenvalue of 9.632. This component covered 13 different preferences; the Cold and hot system (QDBN1) (.827) got the highest score. Design of district (QDBN13) was lowest (.529).

Component 2 (The environmentally friendly nature of the building and Location EBL)

This component has an eigenvalue of 3.599. This component covered seven different preferences; Soil of land (EBL1) (.709) got the highest score. Near to public transport (EBL7) was lowest (.550).

Component 3 (Finish and Street Location FSL)

This component has an eigenvalue of 2.739. This component covered three different preferences; the Accessibility of location (FSL1) (.832) got the highest score. Finishing (FSL3) was lowest (.487).

Component 4 (Building Functionality and Location BFL)

This component has an eigenvalue of 2.010. This component covered four different preferences; Closeness to family (BFL1) (.721) got the highest score. Age of the building (BFL4) was lowest (.430).

Component 5 (External Aesthetics EA)

This component has an eigenvalue of 1.900. This component covered one preference, the Aesthetics (EA1), which scored .852.

Component 6 (Privacy and Rooms PR)

This component has an eigenvalue of 1.838. This component covered two different preferences; the Number of bedrooms (PR1) (.777) got the highest score, whilst Privacy (PR2) scored .680.

Component 7 (External Sizes ES)

This component has an eigenvalue of 1.561. This component covered two different preferences; the Building size (ES1) (.742) got the highest score, whilst Lot size (ES2) scored .588.

Component 8 (Modern District MD)

This component has an eigenvalue of 1.342. This component covered two different preferences; the Modern design (MD1) (.748) got the highest score, whilst Name of district (MD2) scored .673.

Component 9 (Bigger Homes BH)

This component has an eigenvalue of 1.153, and covered one preference, Bigger home even if it is far from a city (BH1), which had a score of .843.

Component 10 (Service in the Neighbourhoods SN)

This component has an eigenvalue of 1.071. This component covered two different preferences; the Services in the neighbourhood (SN1) (.786) got the highest score, whilst Closeness to school (SN2) scored .530.

7.5.1.1.1 Professional Questionnaire Model All the Variables Together (Model C)

This study identified and ranked the indicators of professional preferences according to their level of significance, based on professionals' views. In Table 7.20, each component is set according to a series of correlations between different preferences.

Table 7-20 The new group of variables based on professionals' views

Component	Initial Eigenvalues % of Variance	Extraction Sums of Squared Loadings % of Variance	Rotation Sums of Squared Loadings % of Variance
1	26.033	26.033	17.878
2	9.727	9.727	11.536
3	7.402	7.402	8.052
4	5.404	5.404	6.199
5	5.135	5.135	5.338
6	4.969	4.969	5.164
7	4.218	4.218	4.902
8	3.628	3.628	4.892
9	3.116	3.116	4.285
10	2.894	2.894	4.278

The table above shows that the components after the factor analysis for the 38 variables are in ten different groups. The professional model shows all the regrouping of all the variables after carrying out the factor analysis. It also shows the different components with the weight of each group. After the conduction of the factor analysis, the model shows the priority stages for the buyers.

This factor loading tells us about the relative contribution that a variable makes to a factor. Most variables have high loadings on the most important factors, and fewer loadings on other factors. It is recommended to interpret factor loadings with an absolute value greater than 0.3.

From Table 7.21, it can be seen that the preference Cold and hot system (QDBN1 .827) has greater influence on component 1 compared to other components, whereas the preference Number of parking spaces (EBL1 .709) has more influence on component 2 in relation to other

components, and Accessibility of location (FSL1 .832) has more influence on component 3 in relation to other components.

Table 7-21 The new components of variables based on professionals' views

Component	Rotated Component Matrix[a]	Code	Factor loading score	component weight %
The quality of design, the buildings and neighbourhood (QDBN)	Cold and hot system	QDBN1	.827	17.878
	Insulation	QDBN2	.787	
	Cleanliness of the neighbourhood	QDBN3	.691	
	Storage room	QDBN4	.680	
	Materials used in the building	QDBN5	.674	
	Size of windows	QDBN6	.669	
	Natural light	QDBN7	.658	
	Space for family	QDBN8	.619	
	Facility room	QDBN9	.570	
	Fresh air in location	QDBN10	.564	
	Quality of the neighbourhood	QDBN11	.545	
	Safety of the neighbourhood	QDBN12	.531	
	Design of district	QDBN13	.529	
The environmentally friendly nature of the building and location (EBL)	Number of parking spaces	EBL1	.709	11.536
	Soil of land	EBL2	.709	
	Number of building storeys	EBL3	.689	
	The environmentally friendly nature of the building	EBL4	.584	
			.569	
	Number of bathrooms	EBL5	.552	
	Garden	EBL6	.550	
	Near to public transport	EBL7		
Finish and street location (FSL)	Accessibility of location	FSL1	.832	8.052
	Street wide	FSL2	.803	
	Finishing	FSL3	.487	
Building functionality and location (BFL)	Closeness to family	BFL1	.721	6.199
	Functionality	BFL2	.662	
	Quality of the building	BFL3	.601	
	Age of the building	BFL4	.430	
External aesthetics (EA)	Aesthetics	EA1	.852	5.338
Privacy and rooms (PR)	Number of bedrooms	PR1	.777	5.164
	Privacy	PR2	.680	
External sizes (ES)	Building size	ES1	.742	4.902
	Lot size	ES2	.588	
Modern district (MD)	Modern design	MID1	.748	4.892
	Name of district	MID2	.673	
Bigger homes (BH)	Bigger home even if it is far from a city	BH1	.843	4.285

Moreover, Figure 7.10 shows the model and the component codes with circles showing the size of each one.

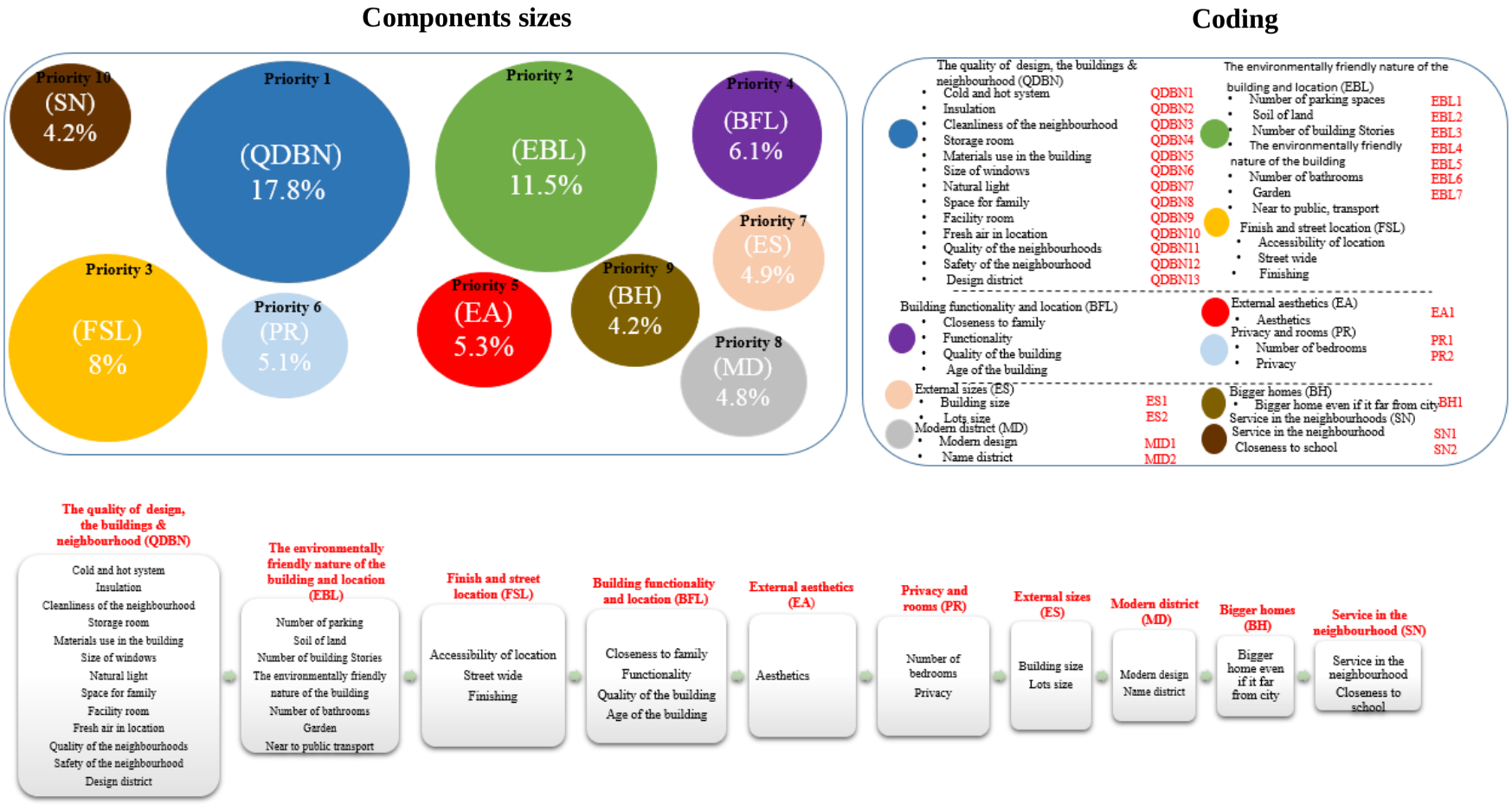

Figure 7-10 The components and coding

The professional model (C) in Figure 7.11 shows the stages that the professionals think are consumer priorities, starting with the Quality of design of the buildings and neighbourhood (QDBN), which includes 13 variables. The second priority is the environmentally friendly nature of the building and location (EBL), which includes seven variables. The third priority is Finishing and street location (FSL), which includes three variables. Fourth is Building functionality and location (BFL), which includes four variables, and fifth is External aesthetics (EA), which includes one variable. The sixth priority is Privacy and rooms (PR), which includes two variables; seventh is External sizes (ES), which also includes two variables; and eighth is Modern district (MD), which also includes two variables. Ninth is Bigger homes (BH), which includes one variable and, finally, comes Services in the neighbourhoods (SN), which includes two variables.

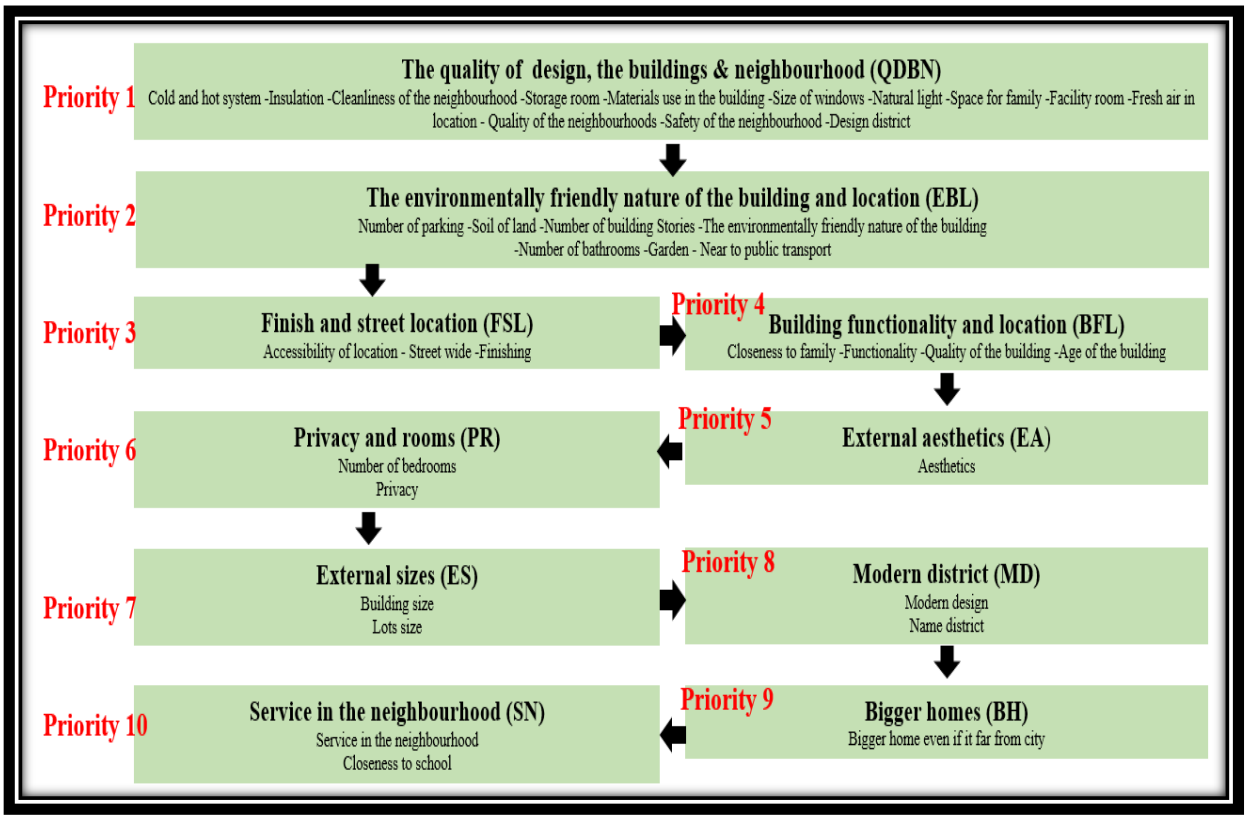

Figure 7-11 Model shows all the variables group from the professional questionnaire

7.5.1.2 Factor Analysis Test for Each Home Preference Variable

Test Question

- *What are the highest consumer preferences for each factor in the professional questionnaire?*

The Reliability

In Table 7.22 Cronbach's alpha coefficient is above .7 in for each factor, Location, Eternal design, Internal design and Home specification details. One variable in internal design was deleted to make it reliable.

Table 7-22 Reliability Statistics

Component	Cronbach's Alpha	N of Items	Deleted items	When the alpha is 0.7 or higher, it means the consistency of the component is acceptable.
LF	.778	13	-	
EXF	.729	8	-	
INF	.703	10	1	
SPF	.804	6	-	

The Kaiser-Meyer-Olkin value: In Table 7.23, the KMO is above .6, for all the factors.

Table 7-23 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy for the Location		.680	Recommends accepting values greater than 0.5 as acceptable. Furthermore, values between 0.5 and 0.7 are good, values between 0.7 and 0.8 are great, and values above 0.8 are superb.
Bartlett's Test of Sphericity	Approx. Chi-Square	1006.443	
	df	78	
	Sig.	.000	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy for the External design		.674	
Bartlett's Test of Sphericity	Approx. Chi-Square	394.626	
	df	28	
	Sig.	.000	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy for the Internal design		.890	
Bartlett's Test of Sphericity	Approx. Chi-Square	609.275	
	df	55	
	Sig.	.000	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy for home specification details		.792	
Bartlett's Test of Sphericity	Approx. Chi-Square	462.876	
	df	15	
	Sig.	.000	

7.5.1.2.1 Location Factor

In Table 7.24, each component is set according to a series of correlations between different preferences. Thus, it shows how correlated a preference could be to other factors. The first column, Initial Eigenvalues, relates to eigenvalues of the correlation matrix and indicates which components of the table remain in analysis. To carry out the factor analysis, only components with eigenvalues of more than 1 are selected and those with eigenvalues of less than 1 are excluded. The initial and rotated eigenvalues were used to confirm the variation explained by each preference's components. Lower values indicate that the contribution to the explanation of the variances in the set of the preferences survey attributes is minimal.

Table 7-24 Total variance explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.912	30.091	30.091	1.865	14.344	14.344
2	1.911	14.699	44.790	1.704	13.107	27.451
3	1.546	11.893	56.684	1.701	13.086	40.537
4	1.231	9.469	66.153	1.636	12.587	53.124
5	1.087	8.364	74.517	1.127	8.666	61.790

For example, the initial eigenvalue of the first location preference in Table 7.24 is 3.912. Hence, the proportion of the total test variance accounted for by the first factor is 30% (the figure given in % of variance column). In this analysis, just five components carry eigenvalues of 1 and more, and account for 74.1% of the variance, as shown in the cumulative % column. Therefore, the five components can be considered as representative of 13 professional preferences. The following scree plot of data is another way of presenting the most important factors of the study.

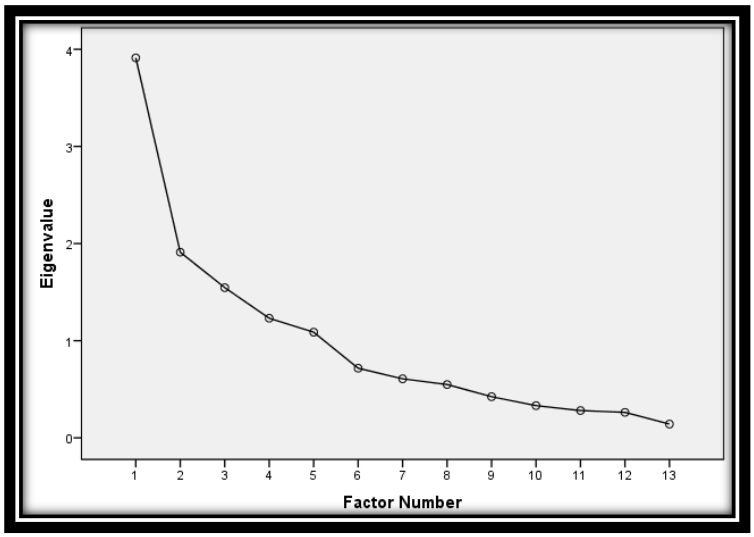

Figure 7-12 Scree plot for the location factor

As Figure 7.12 shows, the slope of the scree is levelling off, while moving towards components with an eigenvalue of less than 1. The point of interest is defined between components 1 and 2, where the figure curve connects to the points, starting to flatten out and become horizontal.

From principal component analysis, five components that have an eigenvalue of more than 1 are selected. The next phase is the extraction of a rotated component matrix for finding out which of the professionals' location preferences are contributing the highest level of influence. This level of influence is shown in Table 7.25. The matrix loading score presented shows the degree of influence of each location in the professionals' preference in the survey. This factor loading tell us about the relative contribution that a variable makes to a factor. From Table 7.25, it can be seen that Closeness to school (LF5; 0.699) has greater influence on component 1 compared to other components, whereas the preference Fresh air in location (LF12; 0.742) has more influence on component 2 in relation to other components; Quality of the neighbourhood (LF2; 0.848) has more influence on component 3 in relation to other components; Street width (LF9; .831) has more influence on component 4 in relation to other components; and Name of district (LF10; .928) only influences component 5.

Table 7-25 Rotated factor matrix[a]

The variables	Factor				
	1	2	3	4	5
Closeness to school LF5	.699				
Near to public transport LF7	.615				
Design of district LF11	.524		.323		
Fresh air in location LF12	.431	.742			
Soil of land LF13	.461	.692		.329	
Services in the neighbourhood LF6		-.652		.486	
Quality of the neighbourhood LF2			.848		
Cleanliness of the neighbourhood LF4	.384		.541		
Closeness to family LF1		.333	.489		
Safety of the neighbourhood LF3	.313		.396		.329
Street width LF9				.831	
Accessibility of location LF8				.649	
Name of district LF10					.928

The most important and influential preferences of each component are extracted to form a reduced list of preferences, which is highly manageable without losing a large amount of data. By applying factor analysis and data reduction in this survey, the 13 location preferences in the questionnaire are reduced to five components, as shown in Table 7.26. It identifies professional preferences for location, which are groupings of preferences from the 13 initially identified. Factor analysis for professionals' location preference components with eigenvalues in excess of 1 are extracted, leaving a total of five. Table 7.26 reports both the variance explained by these retained factors from the total variance of all 13 location factors as well as the factor loadings (and their variances) following varimax rotation in which the variance of each of the factors is maximised.

Table 7-26 New group of variables

Component	Rotated Component Matrix[a]	Code	Extracted eigenvalue	component weight %
Neighbourhoods location and design (LNLD)	Closeness to school LF5 Near to public transport LF7 Design of district LF11	LNLD1 LNLD2 LNLD3	3.912	14.344
Neighbourhoods services (LNES)	Fresh air in location LF12 Soil of land LF13 Service in the neighbourhood LF6	LNES1 LNES2 LNES3	1.911	13.107
Neighbourhoods quality and safety (LNQS)	Quality of the neighbourhood LF2 Cleanliness of the neighbourhood LF4 Closeness to family LF1 Safety of the neighbourhood LF3	LNQS1 LNQS2 LNQS3 LNQS4	1.546	13.086
Neighbourhoods accessibility and streets (LNAS)	Street width LF9 Accessibility of location LF8	LNAS1 LNAS2	1.231	12.587
Neighbourhoods name (LN)	Name of district LF10	LN	1.087	8.666

Component 1: Neighbourhoods Location and Design (LNLD)

This component has an eigenvalue of 3.912. This component covered three different preferences; Closeness to school (LNLD1) (.699) got the highest score, whilst Design of district (LNLD3) was lowest (.524).

Component 2: Neighbourhoods Services (LNES)

This component has an eigenvalue of 1.911. This component covered three different preferences; Fresh air in location (LNES1) (.742) got the highest score, whilst Services in the neighbourhood (LNES3) was lowest (.652).

Component 3: Neighbourhoods Quality and Safety (LNQS)

This component has an eigenvalue of 1.546. This component covered four different preferences; Quality of the neighbourhood (LNQS1) (.848) got the highest score, whilst Safety of the neighbourhood (LNQS4) was lowest (.396).

Component 4: Neighbourhoods Accessibility and Streets (LNAS)

This component has an eigenvalue of 1.231. This component covered two different preferences; Street width (LNAS1) (.831) got the highest score, whilst Accessibility of location (LNAS2) was lowest (.649).

Component 5: Neighbourhoods Name (LN)

This component has an eigenvalue of 1.087. This component covered one preference, the Name of the district (LN), which scored .928.

7.5.1.2.2 Exterior Design Factor

Table 7.27 shows that the initial eigenvalue of the first external design preference is 2.837. Hence, the proportion of the total test variance accounted for by the first factor is 35.4% (the figure given in % of variance column). In this analysis, just three components carry eigenvalues of 1 and more, and account for 66.3% of the variance, as shown in the cumulative % column. Therefore, the three components can be considered as representative of eight professional preferences.

Table 7-27 Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.837	35.460	35.460	1.896	23.703	23.703
2	1.381	17.259	52.718	1.032	12.896	36.599
3	1.097	13.718	66.436	.899	11.236	47.835

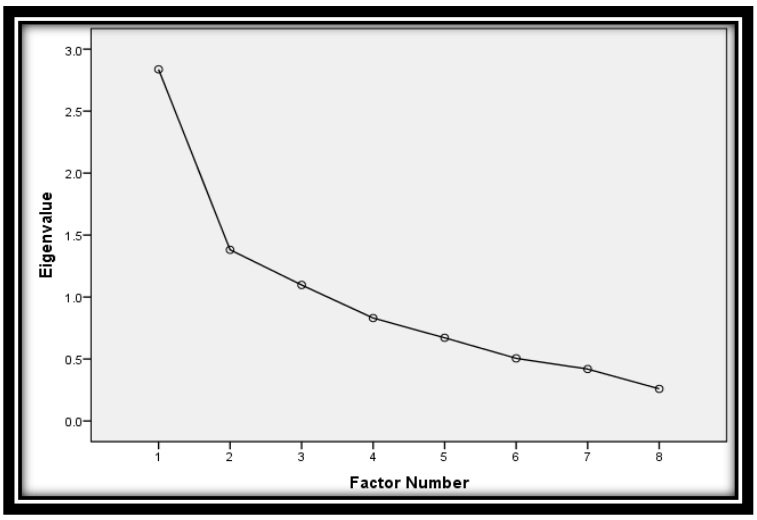

Figure 7-13 Scree plot for the exterior design factor

The above scree plot of data is another way of presenting the most important factors of the study. As Figure 7.13 shows, the slope of the scree is levelling off, while moving towards components with eigenvalues of less than 1. The point of interest is defined between components 2 and 3, where the figure curve connects to the points, starting to flatten out and become horizontal. From principal component analysis, three components that have an

eigenvalue of more than 1 are selected. The next phase is the extraction of a rotated component matrix for finding out which exterior design professional preferences are contributing the highest level of influence, as shown in Table 7.28. The matrix loading score presented shows the degree of influence of each exterior design professional preference in the survey. This factor loading tells us about the relative contribution that a variable makes to a factor. From Table 7.28 it can be seen that Number of parking spaces (EXF7; 0.925) has greater influence on component 1 compared to other components, whereas the preference Aesthetics (EXF1; 0.634) has more influence on component 2 in relation to other components, and Lot size (EXF4; 0.621) has more influence on component 3 in relation to other components.

Table 7-28 Rotated factor matrix[a]

The variables	Components		
	1	2	3
Number of parking spaces EXF7	.925		
Number of building storeys EXF8	.702		
Bigger home even if it is far from a city EXF6	.425		
Aesthetics EXF1		.634	
Garden EXF3	.467	.537	
Finishing EXF2		.535	.430
Lot size EXF4			.621
Building size EXF5	.353		.476

The most important and influential preferences of each component are extracted to form a reduced list of preferences, which is highly manageable without losing a large amount of data. By applying factor analysis and data reduction in this survey, the eight exterior design professional preferences are reduced to three components, as shown in Table 7.29. It identifies exterior design professional preferences, which are groupings of preferences from the eight initially identified. Factor analysis for exterior design professional preference components with eigenvalues in excess of 1 are extracted, leaving a total of three. The table reports both the variance explained by these retained factors from the total variance of all eight external design factors as well as the factor loadings (and their variances) following varimax rotation in which the variance of each of the factors is maximised.

Table 7-29 New group of variables

Component	Rotated Component Matrix[a]	Code	Extracted eigenvalue	component weight %
External size and design (EXSD)	Number of parking spaces EXF7 Number of building storeys EXF8 Bigger home even if it is far from a city EXF6	EXSD1 EXSD2 EXSD3	2.837	23.703
External design quality (EXDQ)	Aesthetics EXF1 Garden EXF3 Finishing EXF2	EXDQ1 EXDQ2 EXDQ3	1.381	12.896
External home footprint (EXHF)	Lot size EXF4 Building size EXF5	EXHF1 EXHF2	1.097	11.236

Component 1: External Size and Design (EXSD)

This component has an eigenvalue of 2.837. This component covered three different preferences; Number of parking spaces (EXSD1) (.925) got the highest score; whilst Bigger home even if it is far from a city (EXSD3) was lowest (.425).

Component 2: External Design Quality (EXDQ)

This component has an eigenvalue of 1.381. This component covered three different preferences; Aesthetics (EXDQ1) (.634) got the highest score, whilst Finishing (EXDQ3) was lowest (.535).

Component 3: External Home Footprint (EXHF)

This component has an eigenvalue of 1.097. This component covered two different preferences; Lot size (EXHF1) (.621) got the highest score, whilst Building size (EXHF2) was lowest (.476).

7.5.1.2.3 Interior Design Factor

The initial eigenvalue of the first interior design preference in Table 7.30 is 3.249. Hence, the proportion of the total test variance accounted for by the first factor is 29.5% (the figure given in % of variance column). In this analysis, just four components carry eigenvalues of 1 and more, and account for 66.9% of the variance, as shown in the cumulative % column. Therefore, the four components can be consider as representative of 11 professional preferences.

Table 7-30 Total variance explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.249	29.533	29.533	1.823	16.577	16.577
2	1.695	15.413	44.946	1.471	13.371	29.948
3	1.366	12.421	57.368	1.437	13.063	43.011
4	1.064	9.675	67.043	.810	7.365	50.376

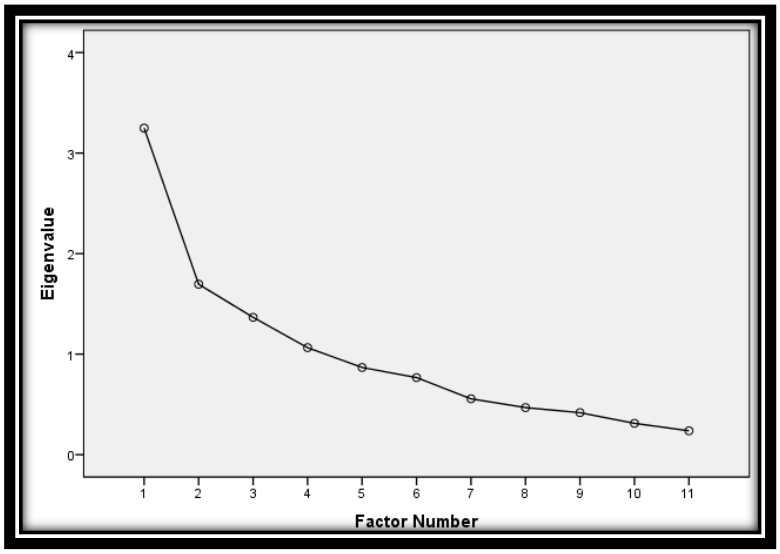

Figure 7-14 Scree plot for the interior design factor

The above scree plot of data is another way of presenting the most important factors of the study. As Figure 7.14 shows, the slope of the scree is levelling off, while moving towards components with eigenvalues of less than 1. The point of interest is defined between components 2 and 3, where the figure curve connects to the points, starting to flatten out and become horizontal. From principal component analysis, four components that have an eigenvalue of more than 1 are selected. The next phase is the extraction of a rotated component matrix for finding out which interior design professional preferences are contributing the highest level of influence. This level of influence is shown in Table 7.31. The matrix loading score presented shows the degree of influence of each interior design professional preference in the survey. This factor loading tells us about the relative contribution that a variable makes to a factor. From Table 7.31 it can be seen that Natural light (INF11; 0.803) has greater influence on component 1 compared to other components, whereas the preference Number of

bedrooms (INF4; 0.804) has more influence on component 2 in relation to other components, Space for family (INF6; 0.795) has more influence on component 3 in relation to other components and (INF1; 0.561) has more influence on component 4.

Table 7-31 Rotated factor matrix[a]

The variables	Components			
	1	2	3	4
Natural light INF11	.803			
Size of windows INF10	.792			
Visitors' space INF7	-.376			-.341
Number of bedrooms INF4		.804		
Number of bathrooms INF5		.722		
Space for family INF6			.795	
Facility room INF9			.545	
Storage room INF8	.436		.466	
Privacy INF3		.328	.339	
Functionality INF1				.561
Modern design INF2				.508

The most important and influential preferences of each component are extracted to form a reduced list of preferences, which is highly manageable without losing a large amount of data. By applying factor analysis and data reduction in this survey, the 11 interior design professional preferences from the questionnaire are reduced to four components, as shown in Table 7.32. It identifies interior design professional preferences, which are groupings of preferences from the 10 initially identified. Factor analysis for interior design professional preferences components with eigenvalues in excess of 1 are extracted, leaving a total of four. The table reports both the variance explained by these retained factors from the total variance of all 10 internal design factors as well as the factor loadings (and their variances) following varimax rotation in which the variance of each of the factors is maximised.

Table 7-32 New group of variables

Component	Rotated Component Matrix[a]	Code	Extracted eigenvalue	component weight %
Environmental quality of the building and visitors' space (INEV)	Natural light INF11 Size of windows INF10 Visitors' space INF7	INEV1 INEV2 INEV3	3.249	16.577
Number of bedrooms and bathrooms (INN)	Number of bedrooms INF4 Number of bathrooms INF5	INN1 INN2	1.695	13.371
Extra space and privacy (INSP)	Space for family INF6 Facility room INF9 Storage room INF8 Privacy INF3	INSPQ INSP2 INSP3 INSP4	1.366	13.063
Functionality and modern design (INFM)	Functionality INF1 Modern design INF2	INFM1 INFM2	1.064	7.365

Component 1: Environmental quality of the building and Visitors' Space (INEV)

This component has an eigenvalue of 3.249. This component covered three different preferences; Natural light (INEV1) (.803) got the highest score, whilst Visitors' space (INEV3) was lowest (.376).

Component 2: Number of Bedrooms and Bathrooms (INN)

This component has an eigenvalue of 1.695. This component covered two different preferences; Number of bedrooms (INN1) (.804) got the highest score, whilst Number of bathrooms (INN2) was lowest (.722).

Component 3: Extra Space and Privacy (INSP)

This component has an eigenvalue of 1.064. This component covered two different preferences; Space for family (INSPQ) (.795) got the highest score, whilst Privacy (INSP4) was lowest (.339).

Component 4: Functionality and Modern Design (INFM)

This component has an eigenvalue of 1.366. This component covered four different preferences; Functionality (INFM1) (.561) got the highest score; Modern design (INFM2) was lowest (.508).

7.5.1.2.4 Home Specification Details Factor

The initial eigenvalue of the first home specification details preference in Table 7.33 is 3.175. Hence, the proportion of the total test variance accounted for by the first factor is 52.9% (the figure given in % of variance column). In this analysis, just two components carry eigenvalues of 1 and more, and account for 69.6% of the variance, as shown in the cumulative % column. Therefore, the two components can be considered as representative of six professional preferences.

Table 7-33 Total variance explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.175	52.909	52.909	2.229	37.156	37.156
2	1.005	16.742	69.651	1.116	18.595	55.751

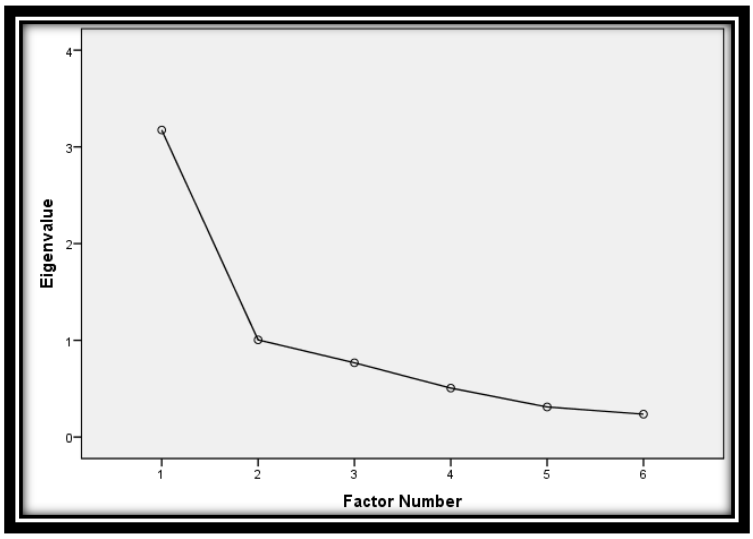

Figure 7-15 Scree plot for the home specification details factor

The above scree plot of data is another way of presenting the most important factors of the study. As Figure 7.15 shows, the slope of the scree is levelling off, while moving towards components with eigenvalues of less than 1. The point of interest is defined between components 2 and 3, where the figure curve connects to the points, starting to flatten out and become horizontal.

From principal component analysis, two components that have an eigenvalue of more than 1 are selected. The next phase is the extraction of a rotated component matrix for finding out which home specification details professional preferences are contributing the highest level of influence, as shown in Table 7.34. The matrix loading score presented shows the degree of influence of each home specification details professional preference in the survey. This factor loading tells us about the relative contribution that a variable makes to a factor. From Table 7.34 it can be seen that Insulation (SPF5; 0.826) has greater influence on component 1 compared to other components, whereas the preference Age of the building (SPF2; 0.711) has more influence on component 2 in relation to other components.

Table 7-34 Rotated factor matrix[a]

The variables	Components	
	1	2
Insulation SPF5	.826	.307
Materials used in the building SPF4	.821	
Cold and hot system SPF6	.758	
The environmentally friendly nature of the building SPF3	.421	
Age of the building SPF2		.711
Quality of the building SPF1	.311	.616

The most important and influential preferences of each component are extracted to form a reduced list of preferences, which is highly manageable without losing a large amount of data. By applying factor analysis and data reduction in this survey, the professional preferences for the six home specification details are reduced to two components, as shown in Table 7.35. It identifies the professionals' preferences for the home specification details, which are groupings of preferences from the six initially identified. Factor analysis for these components with eigenvalues in excess of 1 are extracted, leaving a total of two. Table 7.35 reports both the variance explained by these retained factors from the total variance of all six Home specification details factors as well as the factor loadings (and their variances) following varimax rotation in which the variance of each of the factors is maximised.

Table 7-35 New group of variables

Component	Rotated Component Matrix[a]	Code	Extracted eigenvalue	component weight %
Environmental quality of the building (SPE)	Insulation SPF5 Materials used in the building SPF4 Cold and hot system SPF6 The environmentally friendly nature of the building SPF3	SPE1 SPE2 SPE3 SPE4	3.175	37.156
Building age and quality (SPAQ)	Age of the building SPF2 Quality of the building SPF1	SPAQ1 SPAQ2	1.005	18.595

Component 1: Environmental quality of the building (SPE)

This component has an eigenvalue of 3.175. This component covered four different preferences; Insulation (SPE1) (.826) got the highest score, whilst the environmentally friendly nature of the building (SPE4) was lowest (.421) lowest.

Component 2: Building Age and Quality (SPAQ)

This component has an eigenvalue of 1.005. This component covered two different preferences; Age of the building (SPAQ1) (.711) got the highest score, whilst Quality of the building (SPAQ2) was lowest (.616).

7.5.1.2.5 Professional Model for Each Group (Model D)

This study identified and ranked the indicators of professional preferences according to their level of significance, based on professionals' views. In Table 7.36, each component is set according to a series of correlations between different preferences.

Table 7-36 The new sub-groups based on the professionals' views

Location			
Components	Initial Eigenvalues % of Variance	Extraction Sums of Squared Loadings % of Variance	Rotation Sums of Squared Loadings % of Variance
1	30.091	27.136	14.344
2	14.699	12.440	13.107
3	11.893	8.616	13.086
4	9.469	7.282	12.587
5	8.364	6.315	8.666
Exterior design			
Components	Initial Eigenvalues % of Variance	Extraction Sums of Squared Loadings % of Variance	Rotation Sums of Squared Loadings % of Variance
1	35.460	29.918	23.703
2	17.259	10.965	12.896
3	13.718	6.953	11.236
Interior design			
Components	Initial Eigenvalues % of Variance	Extraction Sums of Squared Loadings % of Variance	Rotation Sums of Squared Loadings % of Variance
1	29.533	25.642	16.577
2	15.413	11.318	13.371
3	12.421	7.225	13.063
4	9.675	6.192	7.365
Home specification details			
Components	Initial Eigenvalues % of Variance	Extraction Sums of Squared Loadings % of Variance	Rotation Sums of Squared Loadings % of Variance
1	52.909	46.528	37.156
2	16.742	9.223	18.595

From Table 7.37, it can be seen that the location preference Closeness to school (LNLD1; 0.699) has greater influence on component 1 compared to other components, whereas the preference Fresh air in location (LNES1; 0.742) has more influence on component 2 in relation to other components, Quality of the neighbourhoods (LNQS1; 0.848) has more influence on component 3 in relation to other components, Street width (LNAS1; 0.831) has more influence on component 4 in relation to other components and Name of district (LN; 0.928) only influences component 5. In the External design, EXSD1 (0.925) has greater influence on component 1 compared to other components, whereas the preference EXDQ1 (0.634) has more influence on component 2 in relation to other components, and EXHF1 (0.621) has more influence on component 3 in relation to other components. In the internal design, INEV1 (0.803) has greater influence on component 1 compared to other components, whereas the preference INN1 (0.804) has more influence on component 2 in relation to other components, INSPQ1 (0.795) has more influence on component 3 in relation to other components and INFM1 (0.561) has more influence on component 4. In the home specification details, SPE1 (0.826) has greater influence on component 1 compared to other components, whereas the preference SPAQ1 (0.711) has more influence on component 2 in relation to other components.

Table 7-37 The components of the new sub-groups based on the professionals' views

Component	Rotated Component Matrix[a]	Code	Factor loading score	component weight %
Neighbourhood's location and design (LNLD)	Closeness to school Near to public transport Design of district	LNLD1 LNLD2 LNLD3	.699 .615 .524	14.344
Neighbourhood's services (LNES)	Fresh air in location Soil of land Service in the neighbourhood	LNES1 LNES2 LNES3	.742 .692 -.652	13.107
Neighbourhood's quality and safety (LNQS)	Quality of the neighbourhood Cleanliness of the neighbourhood Closeness to family Safety of the neighbourhood	LNQS1 LNQS2 LNQS3 LNQS4	.848 .541 .489 .396	13.086
Neighbourhood's accessibility and streets (LNAS)	Street width Accessibility of location	LNAS1 LNAS2	.831 .649	12.587
Neighbourhood's name (LN)	Name of district	LN	.928	8.666
External size and design (EXSD)	Number of parking spaces Number of building storeys Bigger home even if it is far from a city	EXSD1 EXSD2 EXSD3	.925 .702 .425	23.703
External design quality (EXDQ)	Aesthetics Garden Finishing	EXDQ1 EXDQ2 EXDQ3	.634 .537 .535	12.896
External home footprint (EXHF)	Lot size Building size	EXHF1 EXHF2	.621 .476	11.236
Environmental quality of the building and visitors' space (INEV)	Natural light Size of windows Visitors space	INEV1 INEV2 INEV3	.803 .792 -.376	16.577
Number of bedrooms and bathrooms (INN)	Number of bedrooms Number of bathrooms	INN1 INN2	.804 .722	13.371
Extra space and privacy (INSP)	Space for family Facility room Storage room Privacy	INSPQ1 INSP2 INSP3 INSP4	.795 .545 .466 .339	13.063
Functionality and modern design (INFM)	Functionality Modern design	INFM1 INFM2	.561 .508	7.365
Environmental quality of the building (SPE)	Insulation Materials used in the building Cold and hot system The environmentally friendly nature of the building	SPE1 SPE2 SPE3 SPE4	.826 .821 .758 .421	37.156
Building age and quality (SPAQ)	Age of the building Quality of the building	SPAQ1 SPAQ2	.711 .616	18.595

Moreover, Figure 7.16 shows the model and the component codes with circles showing the size of each factor. The professional model (D) (Figure 7.17) shows each group of factors (location-external design-internal design-home specification details), grouping the variables in each factor after conducting the factor analysis. It also shows the different components with the weight of each group. The model shows the priority stages in each factor for buyers.

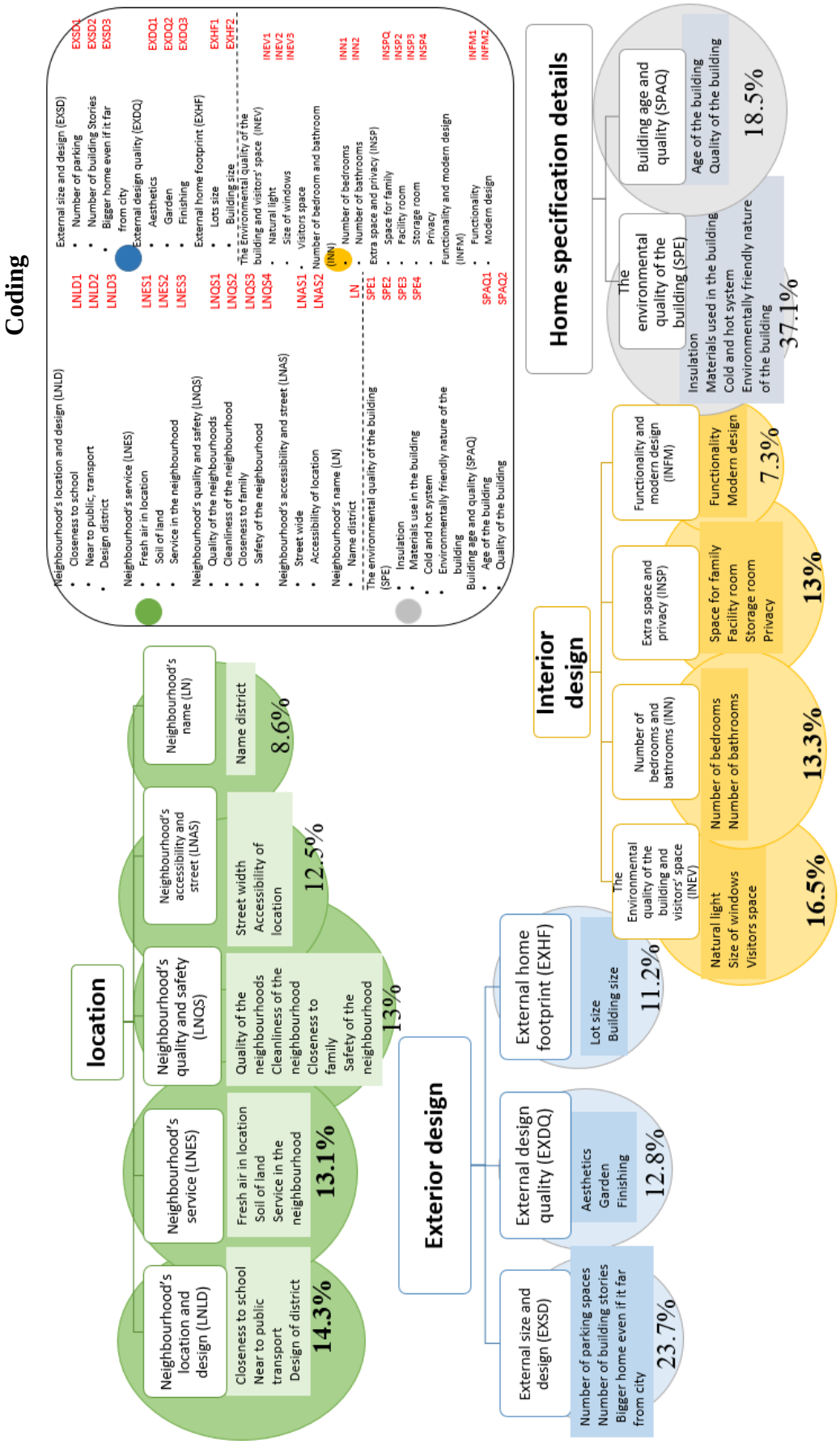

Figure 7-16 The components and coding

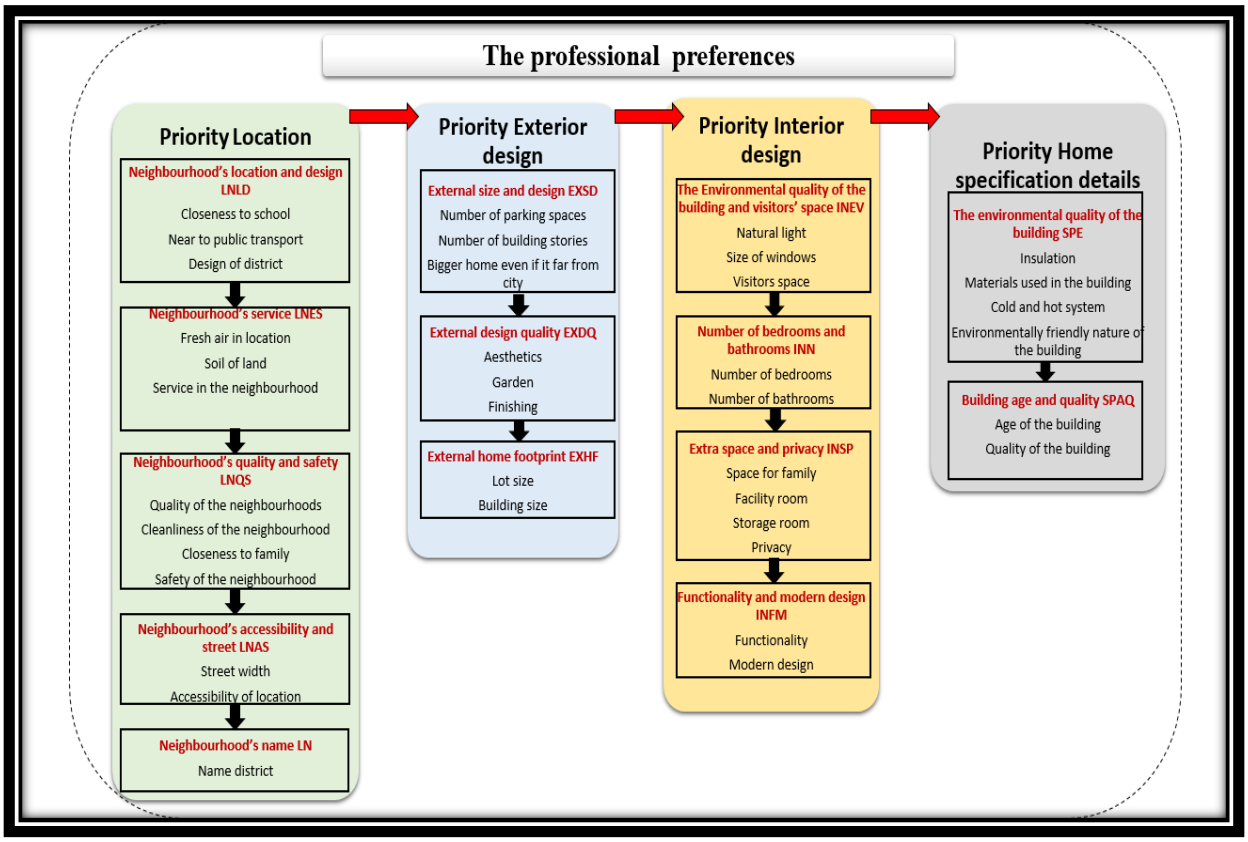

Figure 7-17 Model shows groups for each factor from the professional questionnaire

7.5.1.3 Integration of Both Professional Models (C and D)

To identify the differences between the models developed from the professional questionnaire, at this point the research integrates the stages the consumer goes through when buying their home, as shown in Figure 7.18. The first stage is the way to pay for a home, which is going to be cash, mortgage or loan from RFD. After that, there is an option to look at the property of each factor alone (location-exterior design-interior design-home specification details) or look at the variables together.

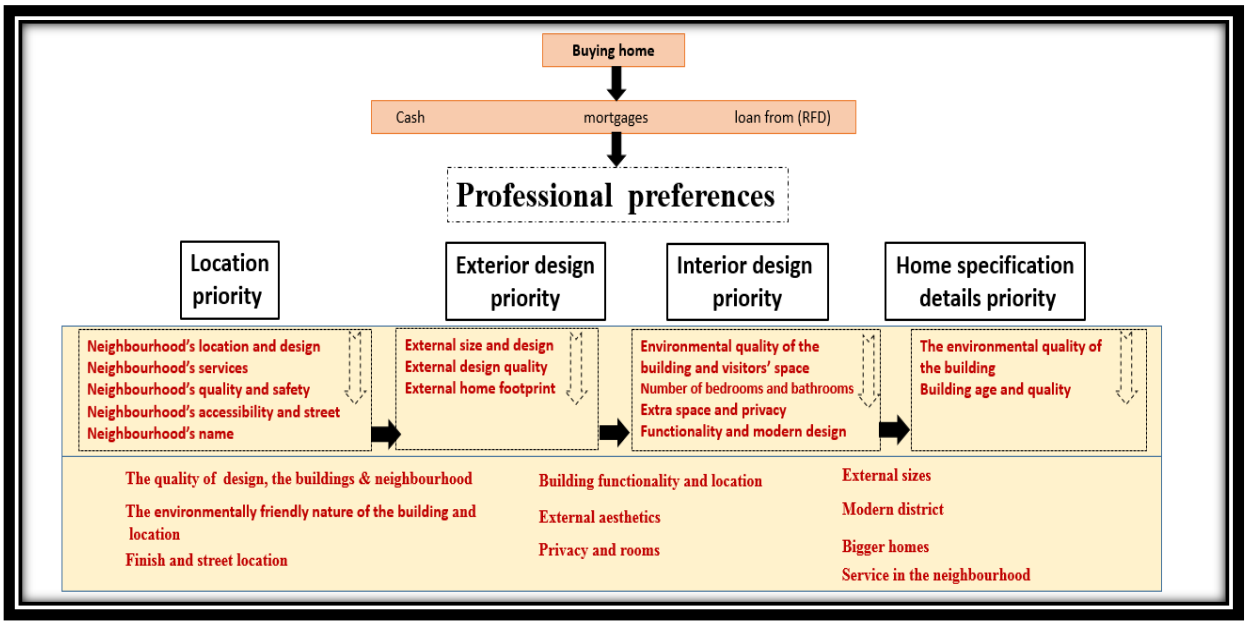

Figure 7-18 Model of consumer home preferences from the professionals' perspective integrating the two professional models

7.6 Summary of the Chapter

This chapter has focused on the professional questionnaire. For demographic details for education level, the result shows that 85.2% of the professional respondents have a high level of education, and that around 90% of them are from in the big cities, which is expected because most of the companies and government workers are based in those cities.

There was a use of inferential analysis, Kruskal-Wallis non-parametric tests were chosen to look for differences in the study. In this chapter the test was between job area of respondents to the professional questionnaire and the home preference factors. A significant difference was found in nine factors, which are Safety of the neighbourhood LF3, Service in the neighbourhood LF6, Lot size EXF4, Functionality INF1, Modern design INF2 , Privacy INF3, Number of bedrooms INF4, Number of bathrooms INF5, and Age of the building SPF2. The test for each group of factors and job area showed that there was a significant difference in five factors, which are Services in the neighbourhood LF6, Lot size EXF4, Functionality INF1, Privacy INF3, and Number of bedrooms INF4. Respondents who work in the government gave a statistically significant different score, high or low, compared with respondents working in other areas.

Factor analysis tests were run to regroup the variables to build up the models, where for each home preference factor there were whilst in the professional there were 10 components. In the test for each factor there were 5 components in the location, 4 components in the internal design, 3 in the exterior design, and 2 in the home specification details. Moreover, the models of the home preferences were designed statistically. Having developed a final consumer model and professional model in these two chapters, the next chapter will integrate the two models and produce a final model of consumer home preferences. Furthermore, it will then validate the model with focus group conducted with both consumers and professionals.

Chapter 8: Integration and Validation of the Housing Preferences Models

Chapter 8: Integration and Validation of the Housing Preferences Models

8.1 Introduction

This chapter will compare the questionnaires by using the *Mean* scores, which are between 1 and 5, to identify the main differences in score between both questionnaires. Moreover, it will integrate and present the consumer and professional models to find the final housing model for consumer preferences. Furthermore, the validation of the model will be presented at the end of the chapter, which encompassed focus groups with consumers and professionals.

8.2 Integrating the Two Questionnaires' Findings

8.2.1 Financial

Figure 8.1 illustrates the differences between the consumer and professional survey mean scores in order to identify the similarities and relationships in the financial questions. The results show that for FF3 (paying cash is one of the common ways to buy property in Saudi), FF17 (the work the Ministry of Housing has completed since 2011 has made a significant impact on the housing market), and FF16 (is there currently a tendency to go back to the extended family style of living?), there was no great difference in the rating of criteria importance for some variables between surveys. For example, paying cash is the method of house buying most preferred by consumers and the professionals know that; moreover, taking out loans is still not a preference for Saudis. In addition, with regard to the Ministry of Housing, both sets of respondents have the same view about their work, and the Saudi government also shares the same view, which is clear by its changing of the minster in charge this year. Moreover, both sets think that sharing a home is a solution to the housing problem, where it is acceptable and was common 20 years ago.

For the remaining criteria, there was a difference between the scores in the two surveys for FF7 (house values are compatible with their quality), where consumers think the quality is less than what they pay for, whilst the professionals do not agree, which leads to reduce the trust and confidence between developer and homebuyer. Moreover, the scores for FF9 (the construction cost is one of the reasons for the housing problem) were also different, where professionals think the land price is high but in construction there are no massive changes in cost, whilst the consumers think the construction cost is high and is reason for the housing problem; the consumers' lack of experience could be the reason for the difference. In addition, for FF11 (building your own home is better than buying a home from a real estate developer), consumers prefer to build their own home so that they can include their preferences in the design, whilst professionals think that cost is the only reason for individual development. Also, FF15 (citizens still make modifications in homes after moving in), the professionals think homebuyers make changes after buying a property; however, the consumers do not agree. This difference may be because the professionals are taking a long-term view. Finally, for FF18 (the political situation in Saudi is stable and encouraging for house purchase), consumers are more optimistic about the political situation than professionals, where the changes in the Saudi royal family could be the reason for the professionals' views.

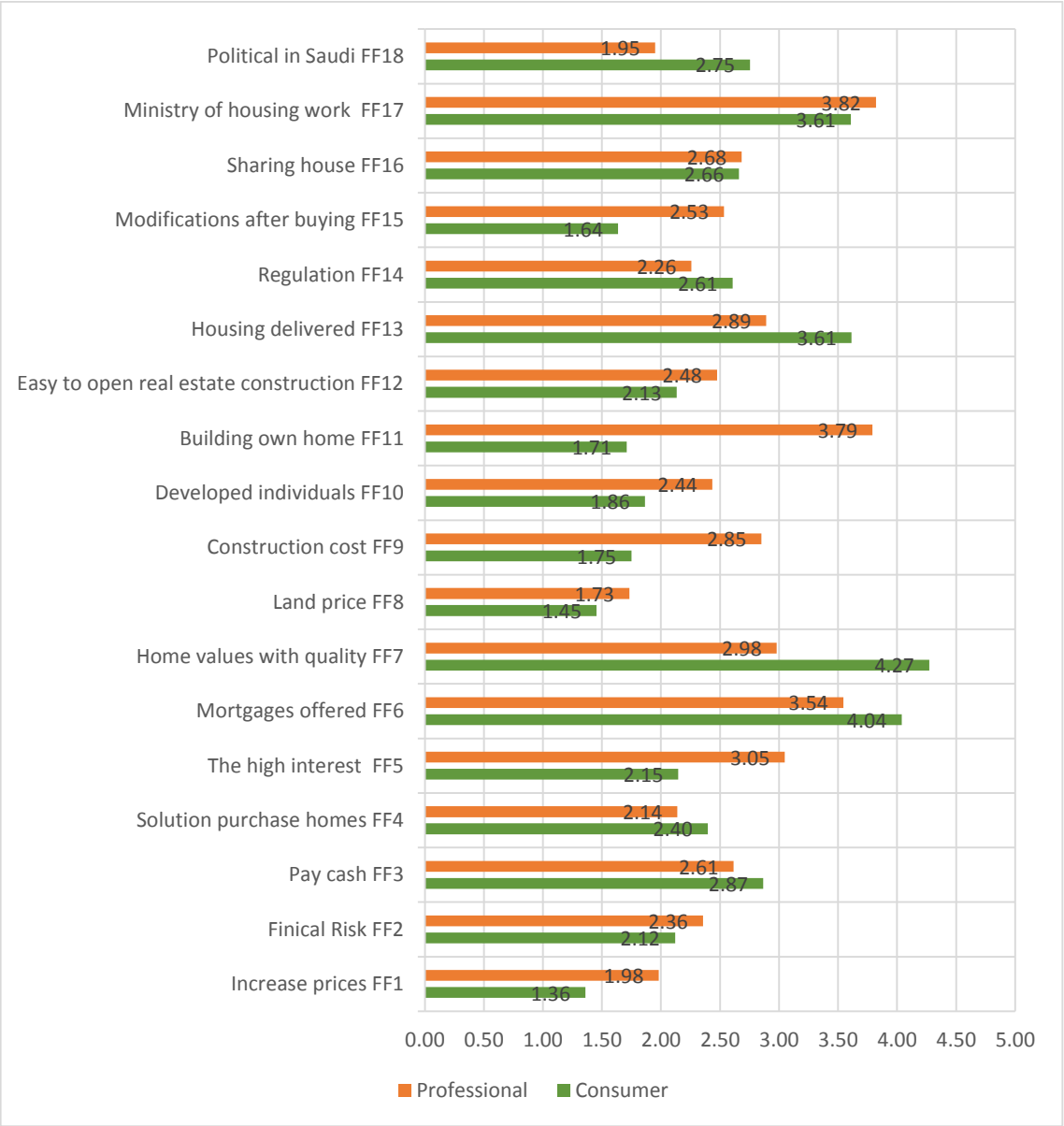

Figure 8-1 The mean of the financial variables

8.2.2 Location

Figure 8.2 illustrates the differences between the consumer and professional survey mean scores. The results show that, for LF1 (closeness to relatives and family), they both give a score of about two for importance, which is less than what this study expected. For LF6 (the neighbourhood services), which it is one of the important location variables, the result is acceptable. Additionally, for LF9 (the width of the street) and LF10 (the name of the district), there was actually no change in the rating of criteria importance for both questionnaires, which

indicates that the name of the neighbourhood kind of personal expression in Saudi. For the remaining criteria, there were differences between the scores of the two surveys, LF2 (the quality of the neighbourhood), where consumers think it is important, where the open to different culture make consumers not accept the low quality of district in Saudi. The consumers also give high scores compared with the professionals for LF3 (the safety of the location) and LF4 (the cleanliness of the neighbourhood), which are linked to the neighbourhood's quality.

In addition, consumers gave higher scores for LF5 (the proximity from the school), LF7 (how near the location is to public transport), LF12 (the quality of the fresh air and how far the location is from the industrial area and noise) and LF13 (soil of the land's location – whether or not it is on land which is prone to flooding), which indicates a massive difference between the views.

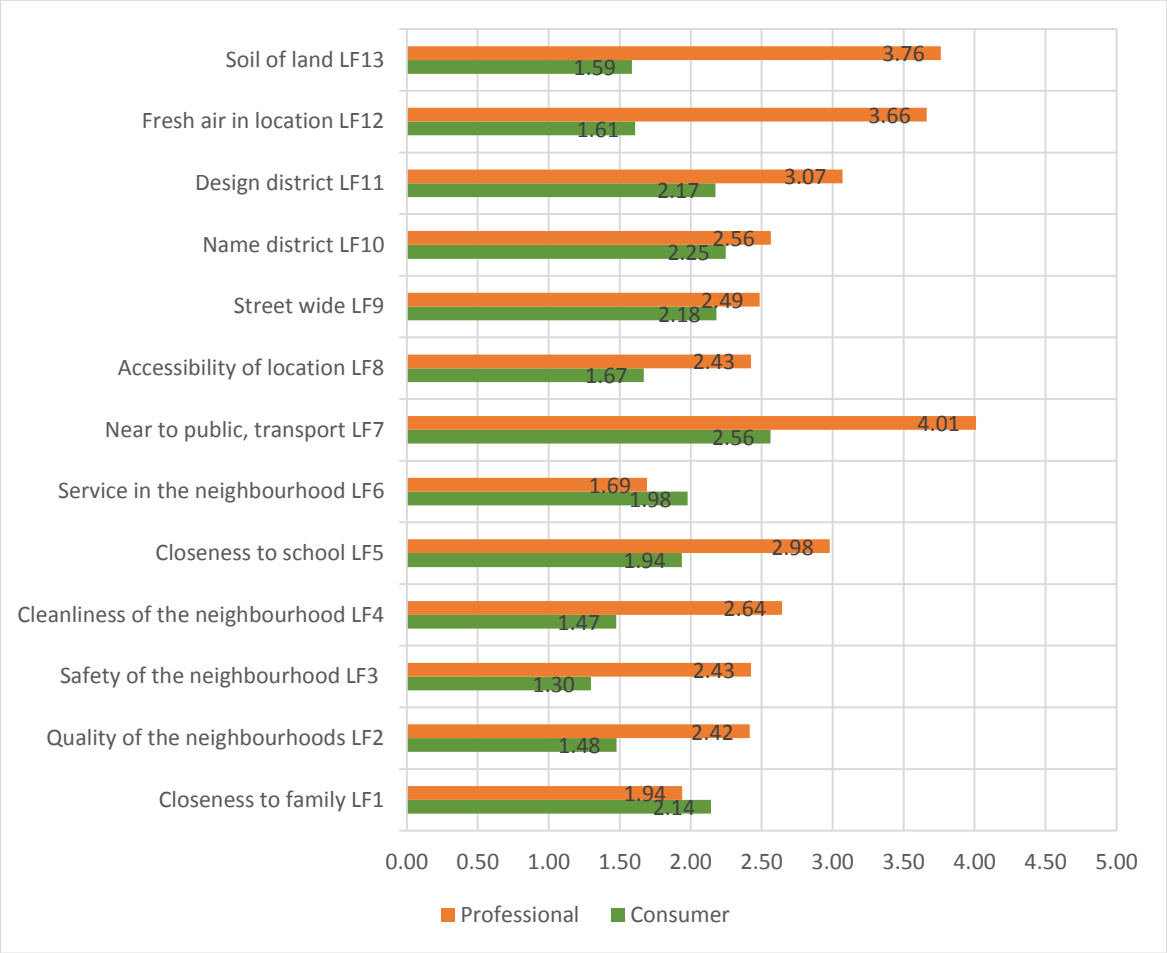

Figure 8-2 The mean of the location variables

8.2.3 External Design

Figure 8.3 illustrates the differences between the consumer and professional survey mean scores. For EXF1 (the aesthetics and building design) and EXF4 (the large lot size) there was actually no change in the rating of criteria importance between the surveys, which could mean that these are basic preferences for the Saudi homebuyer.

On the other hand, for the remaining criteria, there was a differences between the scores of the two surveys: the consumers gave high scores to the rest of the variables, principally, EXF2 (the type and quality of finishing such as painting and flooring), EXF3 (the size of the garden and courtyard), EXF5 (the bigger building size), EXF6 (how important is it if the home is bigger even if it is far from a city), EXF7 (the width and number of parking spaces) and EXF8 (the

number of floors in the building). Where they differ, this provides a clear view about the relationship between the home developers and consumers.

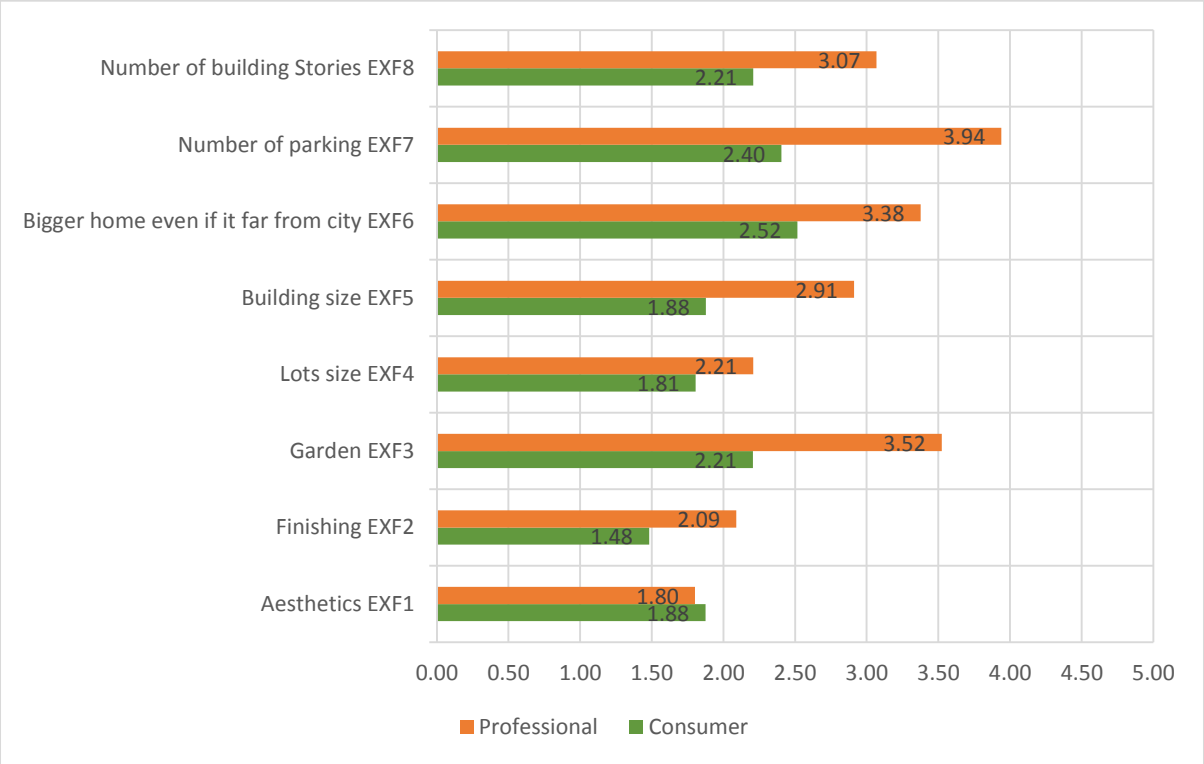

Figure 8-3 The mean of the external design variables

8.2.4 Internal Design

Figure 8.4 illustrates the differences between the consumer and professional survey mean scores. For INF1 (the functionality and spaciousness), INF2 (the modern design) and INF7 (the larger space for the visitors' room), there was actually no change in the rating of criteria importance between surveys. Thus, it seems that, for the floor plan design, both consumers and professionals are in agreement about its importance. For the remaining criteria, consumers still gave higher scores, and there was a difference between the scores of the two surveys for specific internal variables, chiefly INF5 (the number of bathrooms), INF8 (presence of a storage room), INF10 (the size of the windows) and INF11 (the natural light).

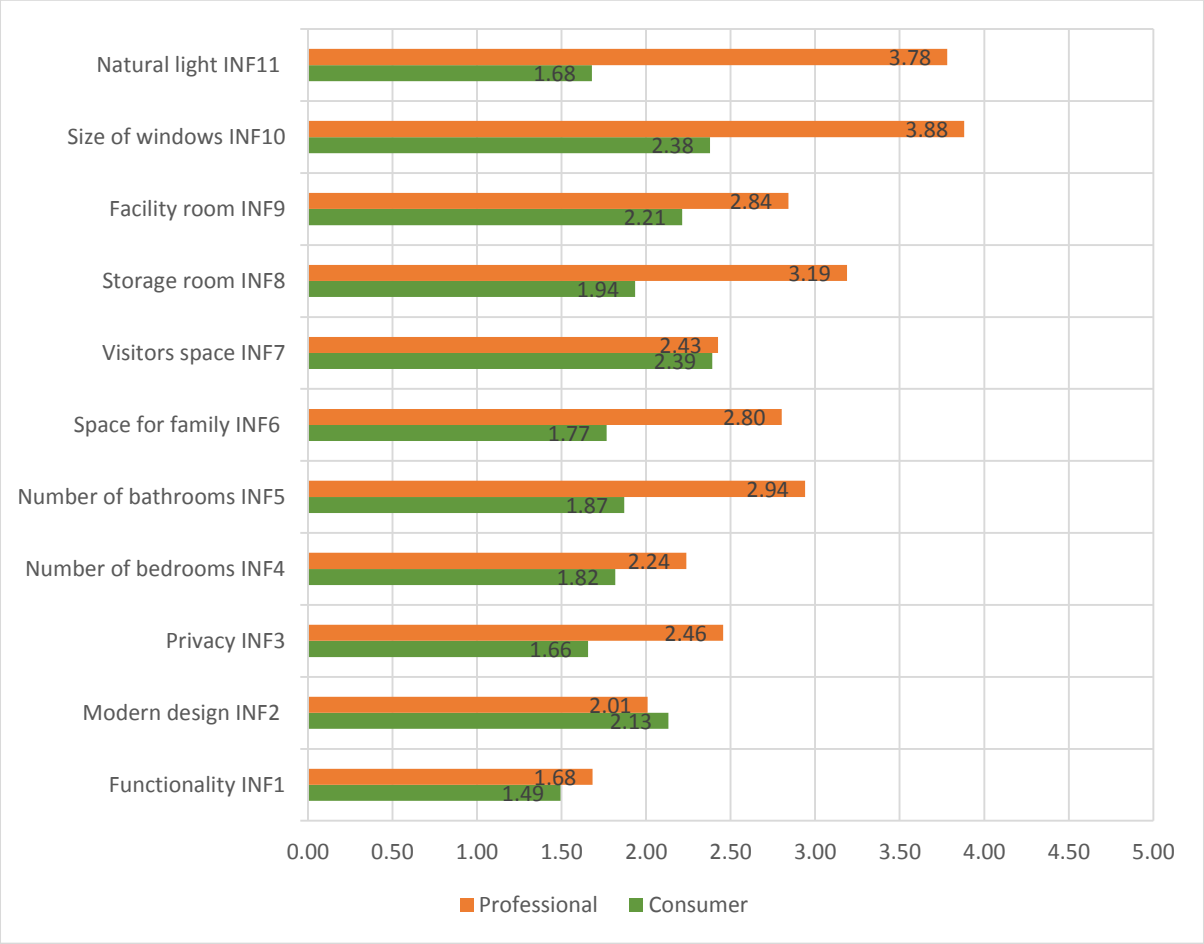

Figure 8-4 The mean of the internal design variables

8.2.5 Home Specification Details

Finally, 8.5 illustrates the differences between the consumer and professional survey mean scores. For SPF1 (the quality of building comes as the most preferred variable), there was actually no change in the rating of criteria importance between surveys, where both types of respondent think the home quality is an important preferences, which is to be expected.

For the remaining criteria, there was a massive difference between the scores of the two surveys, where consumers also scored all the variables as highly important, starting from SPF2 (the age of the building), SPF3 (the environmentally friendly nature of the building), SPF4 (the kind of materials used in the building), SPF5 (the insulation of the building) and SPF6 (the

cold and heating system in the building). All of these specifications are important to the homebuyer; however, the professionals do not give much attention to them.

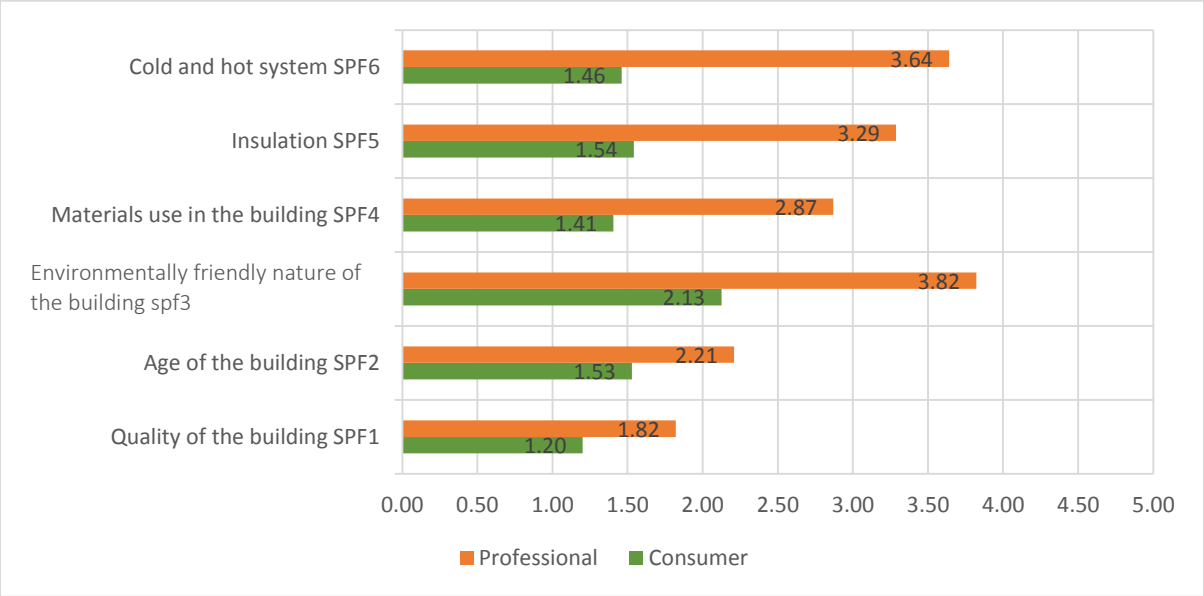

Figure 8-5 The mean of the home specification details variables

8.3 The Model Concept

This research applies user participation, where the participants in this study are stakeholders in the final result. Consumers are the major stakeholders in buying a house, and so were asked their opinions about home preferences, as the main part of the study. However, professionals such as people who work in the Ministry of Housing and real estate development companies are also counted as stakeholders for housing in Saudi. Furthermore, this study's final design model represents the views of both the consumers and professional in Saudi Arabia.

There are a number of different basic variables, which build upon people's choices when buying their homes, which provide a way to establish and create a consumer model. First, the financial options, which in Saudi Arabia comprise three choices: cash payment, taking a commercial loan or getting government funding without interest. After the questionnaires had been designed based on certain variables, and the respondents' answers had been tested as one

general group to see how important decisions are formed when consumers test all the variables against each other, the first model was produced, based on consumers' opinion. This model is a new set of different weights, containing elements from all variables and giving the amount of preference for each group.

After that, from the questionnaire answers based on the basic group, each group was tested to find out what are the important elements in each group, and this led to the formation of sub-groups within each main group. The output led to the second consumer model; this option built consumer desires based on the four main groups (location – exterior design – interior design – the home specification details). Creating the two models of consumer choice based on their views was aided by the answers from the consumers. After monitoring their answers, the next step is working to establish two models that represent what the experts deem are most important to the consumers (Figure 8.6).

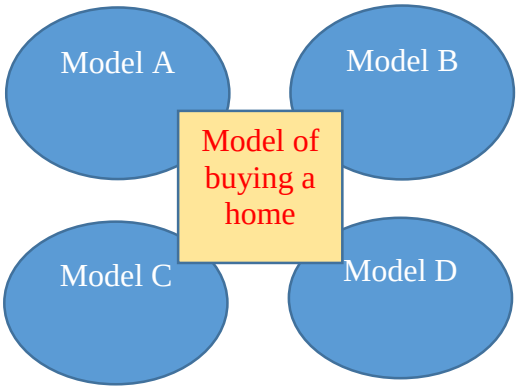

Figure 8-6 Model strategy

The first professional model represents their opinions, gained through their questionnaire, and measured based on all the variables simultaneously, using factor analysis to find the different groups that professionals see as a priority for consumers when they make the decision to buy a home. Then there was another model for professionals, which was based on the priorities of the variables in each one of the four groups, which led to the formation of other sub-groups.

The main aim is to produce a final model containing these four models, where each one of them could represent how consumers choose to buy their home.

8.4 Defining the Variables for the Models

The model started by extracting the variables from different sources – books, journals and different studies. There were a lot of different variables, but most of the sources referred to the following main categories: financial and how to pay for a home, location and neighbourhood preferences, the external design of the building, the internal and functionality of the floor plan, and, finally, some home details that the consumer may prefer. Then, by using the variables, this study started to design the questionnaire including the variables, starting with demographic questions. Then, it included the financial factor with a scale of strongly agree to strongly disagree; the goal here is to find out how people will pay for their homes, and what they think about housing prices in Saudi.

The location factor section in the questionnaire was included to know what the consumers prefer in a neighbourhood and what they are looking for in the location; the scale was from (1) most important to (5) less important. In the internal and external design questions, the survey used the same scale to identify what the consumers preferred more outside the building and in relation to the form of the building. In addition, the questionnaire looked at the internal design, to know what people prefer in the floor plan design of their home. The final part of the questionnaire consisted of some questions about details in the home, what the consumers are looking for, to understand the importance of this variable.

8.4.1 Variables' Reduction and Regrouping and the Consumer Models

In total, there were 38 variables on which to conduct factor analysis testing, distributed in four different groups in the questionnaire (location – internal design – external design – home specification details):

- **The location factor:** where it could be a reason for buying a home in the neighbourhood.

- *Closeness to family LF1*
- *Quality of the neighbourhood LF2*
- *Safety of the neighbourhood LF3*
- *Cleanliness of the neighbourhood LF4*
- *Closeness to school LF5*
- *Services in the neighbourhood LF6*
- *Near to public transport LF7*
- *Accessibility of location LF8*
- *Street width LF9*
- *Name of district LF10*
- *Design of district LF11*
- *Fresh air in location LF12*
- *Soil of land LF13*

- **Exterior design factor:** where it could be a reason for buying the home.

- *Aesthetics EXF1*
- *Finishing EXF2*
- *Garden EXF3*
- *Lot size EXF4*
- *Building size EXF5*
- *Bigger home even if it is far from a city EXF6*
- *Number of parking spaces EXF7*
- *Number of building storeys EXF8*

- **Interior design factor:** where it could be a reason for buying the home.

- *Functionality INF1*
- *Modern design INF2*
- *Privacy INF3*
- *Number of bedrooms INF4*
- *Number of bathrooms INF5*
- *Space for family INF6*

- *Visitors' space INF7*
- *Storage room INF8*
- *Facility room INF9*
- *Size of windows INF10*
- *Natural light INF11*

❖ **Home specification details factor:** where it could be a reason for buying the home.

- *Quality of the building SPF1*
- *Age of the building SPF2*
- *The environmentally friendly nature of the building SPF3*
- *Materials used in the building SPF4*
- *Insulation SPF5*
- *Cold and hot system SPF6*

To identify the consumer model, the research started by conducting factor analysis for all variables together and factor analysis for each main group (location – external design – internal design – home specification details) alone.

8.5 Comparison between the Consumer and Professional Models

The consumer and the professional models show a difference between the consumers and professionals' views. For example, the consumers' view is that the location of the home has three important factors – the quality, the name of the district and the services in the neighbourhood. However, the professionals' view is that the consumer has five important concerns when choosing the location of their home: the neighbourhood location and design, the environment and services in the neighbourhood, the quality and safety of the neighbourhood, the accessibility and street width, and, finally, the name of the neighbourhood.

With regard to the external design, the consumers have one focus, the design of the building, while the professionals think the consumers look at three factors: the size, the quality and the footprint. When considering the internal design when they buy a home, the consumers view the design and functionality of the building and the natural light and extra space as the most

important factors. On the other hand, the professionals think that the consumers look at the environment and visitor space, the number of bedrooms and bathrooms, the extra space and privacy, and the functionality and modernity of the design.

In the home specification details, the consumers focus on one factor, while the professionals think the consumers look for environmentally friendly buildings and consider building age and quality. In the option (A-C) all the variables together, the consumers' view that the quality and needs of the neighbourhoods are the important points when looking for a home, while the professionals think the quality of design of the building and neighbourhoods is the most important. As for the lowest priorities, the consumers think it is the environmentally friendly nature of the building and the services in the neighbourhoods, while the professionals think that it is the services in the neighbourhoods.

8.6 The Final Model

The models that the study has identified from the consumer and professional questionnaires. The final model (Figure 8.7) shows a big difference and gap between the consumers' preferences, who are on the demand side in the real estate market, and the professionals' view, who are on the supply side. There are three ways to buy a home in Saudi Arabia: to pay cash, take out a mortgage or take a loan from the government (RED). In this final model, there are four options and each one has different stages; two options illustrated from 752 respondents in the consumer questionnaire and two options from 102 respondents in the professional questionnaire.

Putting together all the variables led to different categories in the consumer and professional models. Model A shows that there are six categories, two of them about the location, and the neighbourhood quality and needs, which include (Safety of the neighbourhood-Quality of the neighbourhood-Cleanliness of the neighbourhood-Fresh air in location-Soil of land-Accessibility of location-Closeness to school-Design of district-Street width-Name of district).

The other one, the environmental aspects and services in the neighbourhood, includes (Near to public, transport-Service in the neighbourhood-The environmentally friendly nature of the of building). However, there are three categories in model A about the home design, which are, design and home details including (Quality of the building-Materials used in the building-Cold and hot system-Insulation-Age of the building-Functionality-Finishing-Natural light-Privacy); the extra rooms and internal design preferences, which includes (Size of windows-Storage room-Facility room); and the spaciousness and number of rooms, which includes (Number of bedrooms-Number of bathrooms-Visitors space-Space for family). Finally, with regard to the external design, there is one category, the external design preferences, which includes (Lot size-Building size-Number of building storeys-Bigger home even if it is far from a city-Garden-Aesthetics-Number of parking spaces).

When we look at what the professionals think the consumers need in model C, we find that they split the variables into 10 categories. The first and most important category was *the quality of design of the buildings and neighbourhood*, which includes (Cold and hot system-Insulation-Cleanliness of the neighbourhood-Storage room-Materials used in the building-Size of windows-Natural light-Space for family-Facility room-Fresh air in location-Quality of the neighbourhood-Safety of the neighbourhood-Design of district). This was followed by *the environmentally friendly nature of the building and location*, which includes (Number of parking spaces-Soil of land-Number of building storeys-The environmentally friendly nature of the building-Number of bathrooms-Garden-Near to public transport). The *finishing and street location* came next, which includes (Accessibility of location-Street width-Finishing), whilst the fourth category was the *building functionality and location*, which includes (Closeness to family-Functionality-Quality of the building-Age of the building). However, there were four categories relating to the external design, which are *the external aesthetics*, which includes (Aesthetics)*; external sizes*, which includes (Building size-Lot size)*; modern*

district, which includes (Modern design-Name of district)*; and bigger homes*, which includes (Bigger home even if it is far from a city). However, there was one category about *the privacy and rooms*, which includes (Number of bedrooms-Privacy). In addition, there was also one for *services in the neighbourhood*, which includes (Services in the neighbourhood-Closeness to school).

It is clear that consumer model A focuses on the location and home design, with five categories; this model gives an explanation about what the consumers need in their home location and then the home design. The Saudi culture extremely different compared to the rest of the world with regard to housing preference (Bahammam, 2001), where the design and the spaciousness and number of rooms in a house is an important feature for households to consider when making home-ownership decisions, and which relate to privacy as well (Opoku et al., 2010). Some consumers consider functionality and spaciousness of the house itself as more important than location (Kauko, 2006). However, the neighbourhood's location is one of the main preferences for citizens in Saudi; there is a great deal of concern about it (Bahammam, 2001). There is a lot of variation in what is considered the most important preference in the neighbourhood (Kauko, 2006); the aesthetic aspects of a house are also very important to Saudis (Opoku et al., 2010). The models represent the importance of the location through the different views. However, it is clear that the professional model C focuses on the all variables, where it gave high priority to the quality of design of the buildings and neighbourhood and the environmentally friendly nature of the building and location, which include some variables that may not be important for consumers, such as the modern design and environmental elements. On the other hand, by splitting the variables into the main groups, location, external design, internal design and home specification details, the models shows the different categories.

Model B shows the consumers choices, where the location factors are split into three categories: *the neighbourhood quality and accessibility*, which includes (Safety of the neighbourhood-

Cleanliness of the neighbourhood-Quality of the neighbourhoods-Fresh air in location-Soil of land-Accessibility of location)*; the neighbourhood name and street design*, which includes (Design district-Name district-Street wide); and then *the neighbourhood location and services*, which includes (Near to public, transport-Service in the neighbourhood- Closeness to school). However, in the *exterior design* factor there is one group that represents the variables, which includes (Lot size-Building size-Finishing-Garden-Number of building storeys-Aesthetics-Number of parking spaces-Bigger home even if it is far from a city). In the *interior design*, there are two categories: *the design and functionality*, which includes (Number of bedrooms-Number of bathrooms-Privacy-Functionality-Space for family-Modern design), and *the extra space and lighter*, which includes (Size of windows-Natural light-Facility room-Storage room-Visitors' space). Finally, in *the home specification details* factor there is one group that represents all the variables (Materials used in the building-Quality of the building-Cold and hot system-Age of the building-Insulation-The environmentally friendly nature of the building).

However, model D shows that the professionals split the location into five categories: *neighbourhood location and design*, which includes (Closeness to school-Near to public transport-Design district); n*eighbourhood environment and service*, which includes (Fresh air in location-Soil of land-Service in the neighbourhood)*; neighbourhood quality and safety*, which includes (Quality of the neighbourhood-Cleanliness of the neighbourhood-Closeness to family-Safety of the neighbourhood)*; neighbourhood accessibility and streets*, which includes (Street wide-Accessibility of location); and, finally, *the neighbourhood name* (Name of district). However, the *exterior design* factors are split into three categories: *the external size and design*, which includes (Number of parking spaces-Number of building storeys-Bigger home even if it is far from a city)*; the external design quality*, which includes (Aesthetics-Garden-Finishing); and, finally, *the external home footprint*, which includes (Lot size-Building size). The *interior design* factors are split to four variables: *the environment and visitor space*,

which includes (Natural light-Size of windows-Visitors' space)*; the Number of bedrooms and bathrooms*, which includes (Number of bedrooms and bathrooms)*; the extra space and privacy*, which includes (Space for family-Facility room-Storage room-Privacy); and *the functionality and modern design*, which includes (Functionality-Modern design). Finally, the *home specification details* are split into two groups: *the environmentally friendly nature of the building*, which includes (Insulation-Materials used in the building-Cold and hot system-the environmentally friendly nature of the building); and *building age and quality*, which includes (The age and quality of the building). The home seeker looks at the social, economic and demographic attributes, then the home requirements, which are their internal and external needs (Aliu et al., 2014). The location could be a reason for buying a home in a particular neighbourhood; however, after choosing the home's location, the next stage is to choose a particular home within the neighbourhood. Here, the external design could make one home seem more attractive than another, where the design components and the space in and around home will influence the homebuyer, and fulfil the functional preferences. As every home have more details could be much benefit where it could affect homebuyer choices. In model B, it is clear that the consumers focus on the location, which is split into three categories, and then the internal design, which is split into two categories. However, in model D, it is clear that the professionals focus on the location, which is split into five categories, and then the internal design, which is split into four categories, and then the external design, which is split into three categories.

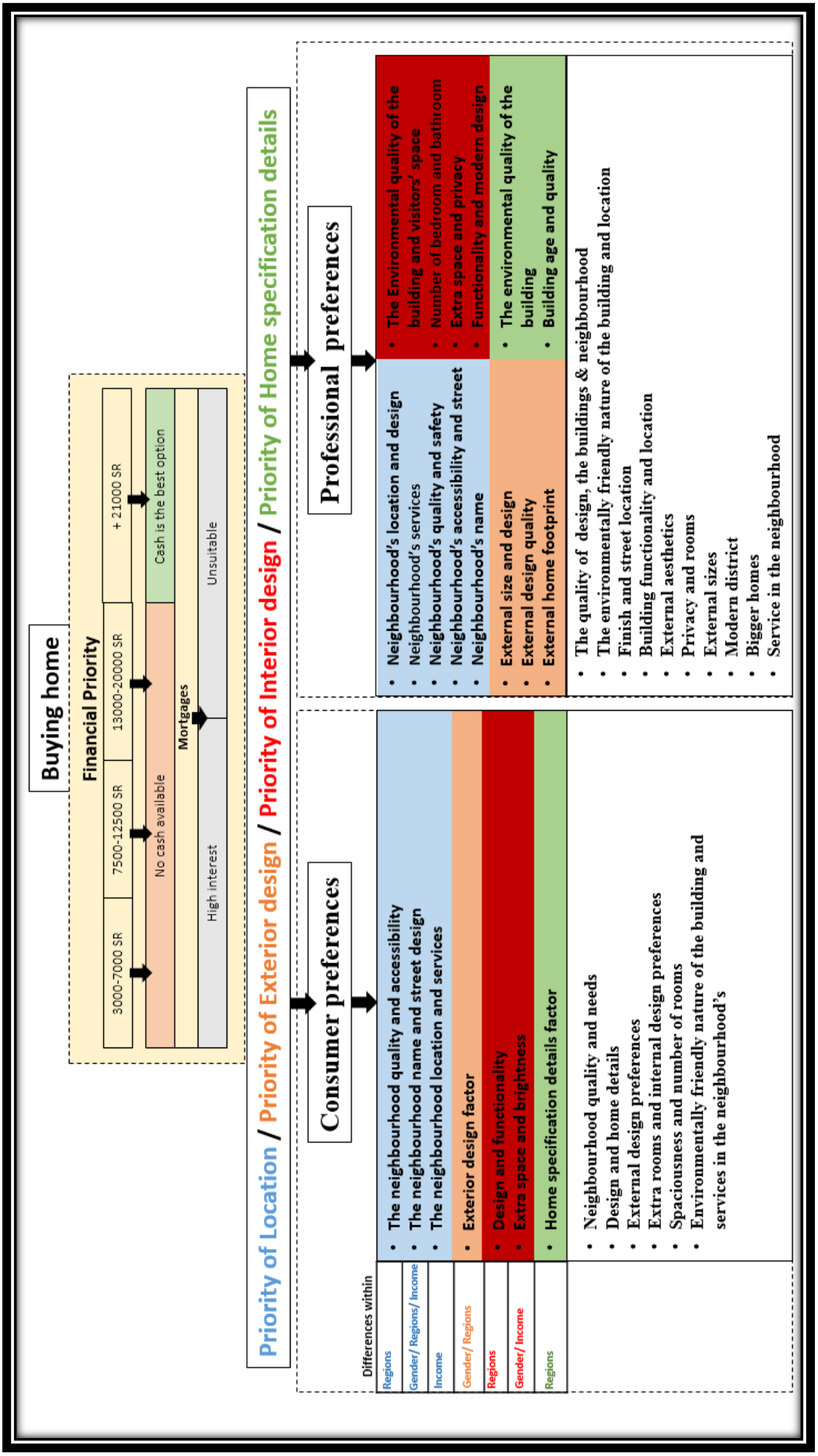

Figure 8-7 The final model developed by using the consumer and professional models

8.6.1 The sub models

The figure 8.8 shows the components with all the variables, and which variables have a significant different based on the result of the test in the gender, region and the monthly income.

The figure 8.9 shows the sub models and where the differences within gender, region and income. Concerning the influence of income on buying a home, it is a financial risk people who earn 13000-20000 SR and they have a different view than those earning 21000 SR. Also the people who earn 13000-20000 think the high interest is problem in mortgages compared with people who earn 3000-7000 SR.

Moreover, about the construction cost people who earn 3000-7000 SR and 7500-12500 SR, think the construction cost is high compared with people who earn 21000 SR. On the other hand people who earn 3000-7000 SR have a significantly different view about the ministry of housing work, compare with the other three groups.

In the location variables people who earn 3000-7000 SR and 7500-12500 SR have a significantly different view about the location of the home near to public transport compared with people who earn 13000-20000 SR and 21000 SR. In addition, for the name of the district factor, people who earn 3000-7000 SR view it as not important and give significant different view compared with all the other groups. Concerning the visitors space, people who earn 3000-7000 SR have a different view compare with people who earn 13000-20000 SR. in term of housing size the people who earn 13000-20000 SR have a different view with all the other groups.

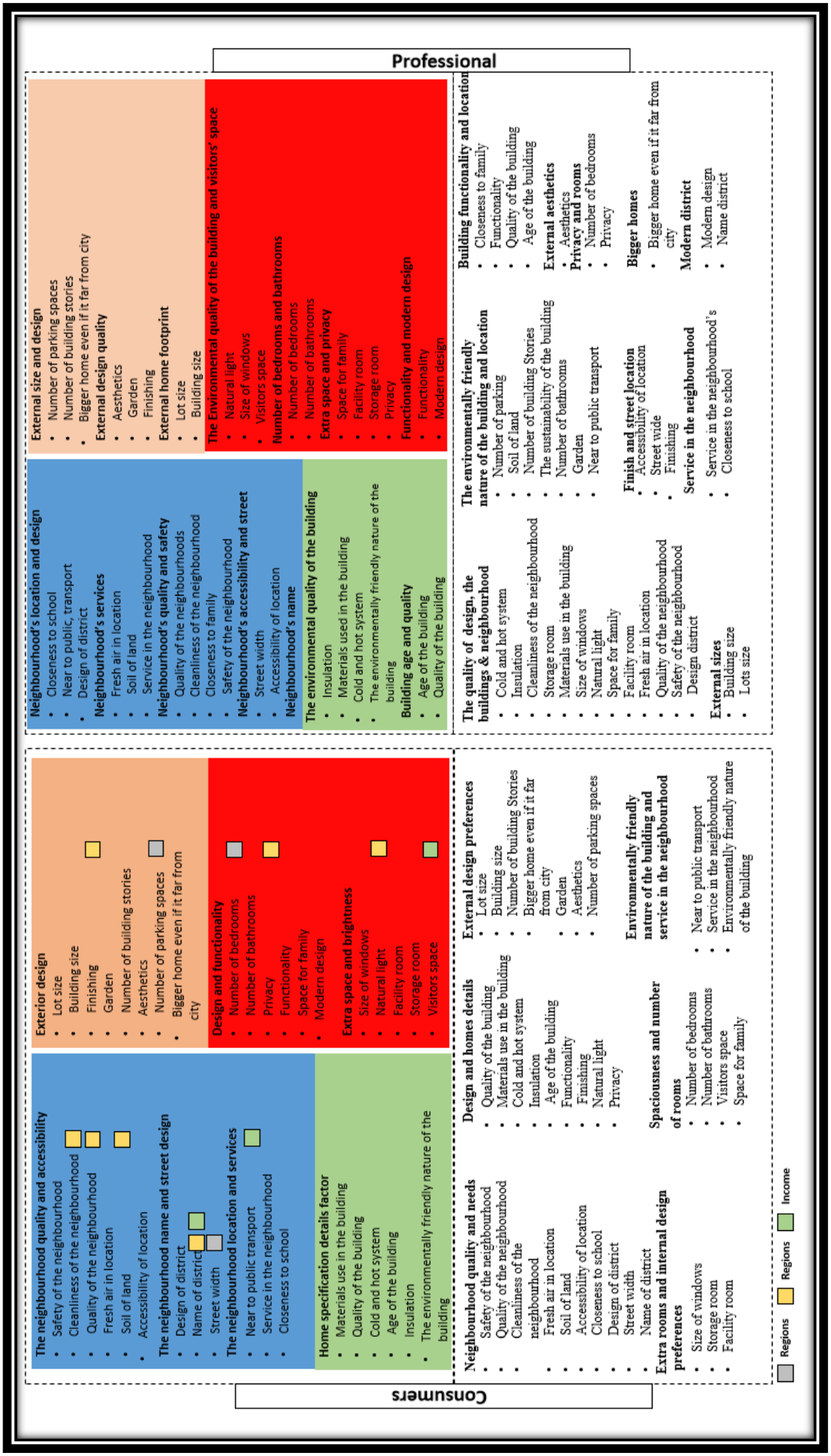

Figure 8-8 The components with the variables

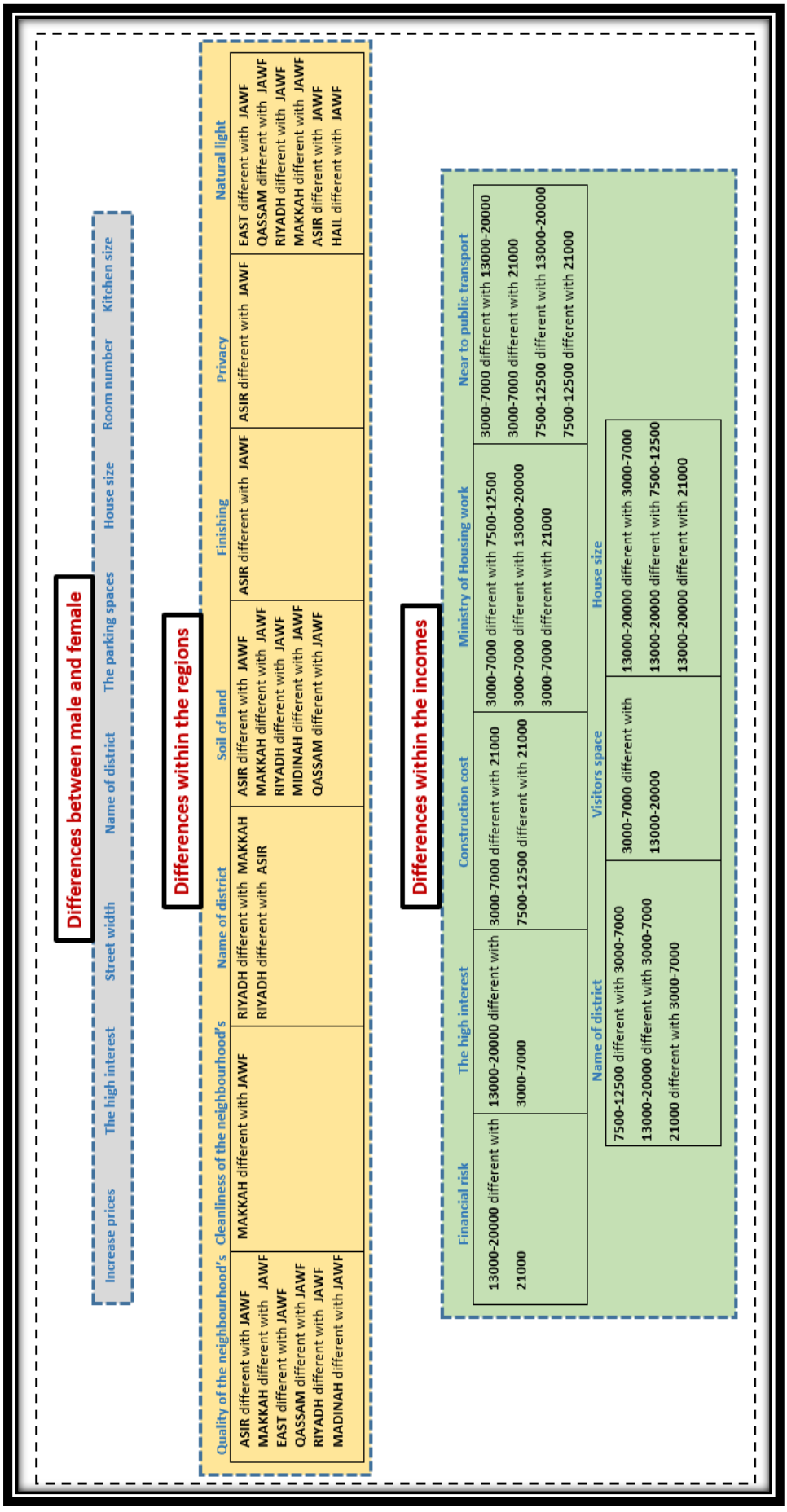

Figure 8-9 Sub models showing where is the difference priority in the financial, location and gender

8.7 Model Validation

The validity of the data is an important point to consider after gathering the data and designing the model (Miles et al., 1994). An invalidated model could affect the evaluation of the research (Amaratunga et al., 2002). The model's most important goal is to be a way to show the developers and the consumers' opinions, to know what the consumers' preferences are and what they are looking for. According to Creswell and Miller (2000), there are eight validation strategies used by researchers. These strategies are: (1) prolonged engagement and persistent observation, which encompasses trust with the participants, knowledge of the culture and testing for misinformation; (2) triangulation, where the researchers use different ways to confirm the evidence; (3) peer review, where an external check is used for the whole research operation; (4) negative case analysis, which means defining the research hypotheses and revising them as the investigation advances; (5) clarification, where the researcher is bias because the reader needs to understands the researcher's position; (6) member checking, where the researcher reviews the results with participants; (7) rich and thick description, which defines whether the results can be transferred; and external audits, where an external consultant, the auditor, is used to check the findings.

This study used triangulation and member checking, where the researcher looks at the participants' views about the situation. This technique is considered to be an important one for ensuring credibility, and it is commonly used in qualitative studies. It includes gathering data, analyses, interpretations, and conclusions according to the participants' views. For this validation strategy, focus group and interviews are the main approaches.

The qualitative focus group method was chosen for the validation in this study, and focus groups were conducted with consumers and professionals who are involved in housing projects. This was done to take their direct views about home preferences and identify any missing variables in the home preferences model. Table 8.1 shows the matrix of the focus groups, where

it shows the codes that focus group participants were interested in, and which code each participant spoke about in the focus groups. These codes are the variables, which the models conduct where it used to codes and translate the record. Figure 8.10 shows the validation of the focus groups, indicating each participant's interest, under the main preferences codes. Furthermore, the following sections explain the analysis of the focus group for each factor. (The full transcripts and coding of the focus groups are in Appendix 3.)

Table 8-1 Matrix of the focus group, codes and which participants mentioned them

The codes		Participants						
		One	Two	Three	Four	Five	Six	Seven
Closeness to family		✓	✓	✓	✓	✓	✓	✓
Quality of the neighbourhood		✓	✓	✓	✓	✓	✓	✓
Safety of the neighbourhood		✓	✓	✓	✓	✓	✓	✓
Cleanliness of the neighbourhood		✓	✓	✓	✓	✓	✓	✓
Closeness to school		✓	✓	✓	✓	✓	✓	✓
Services in the neighbourhood		✓	✓	✓	✓	✓	✓	✓
Near to public transport		✓	✓	✓	✓	✓	✓	✓
Accessibility of location		✓	✓	✓	✓	✓	✓	✓
Street width		✓	✓	✓	✓	✓	✓	✓
Name of district				✓	✓	✓	✓	✓
Design of district		✓	✓	✓	✓	✓	✓	✓
Fresh air in location		✓	✓	✓	✓	✓	✓	✓
Soil of land		✓	✓	✓	✓	✓	✓	✓
Aesthetics		✓		✓	✓	✓	✓	✓
Finishing		✓	✓			✓	✓	✓
Garden		✓	✓	✓	✓	✓	✓	✓
Lot size		✓	✓	✓	✓	✓	✓	✓
Building size		✓	✓	✓	✓	✓	✓	✓
Bigger home even if it is far from a city		✓	✓	✓	✓	✓	✓	✓
Number of parking spaces		✓	✓	✓	✓	✓	✓	✓
Number of building storeys		✓	✓	✓	✓	✓	✓	✓
Functionality		✓	✓	✓	✓	✓	✓	✓
Modern design				✓	✓	✓	✓	✓
Privacy		✓	✓	✓	✓	✓	✓	✓
Number of bedrooms		✓	✓	✓	✓	✓	✓	✓
Number of bathrooms		✓	✓	✓	✓	✓	✓	✓
Space for family		✓	✓	✓	✓	✓	✓	✓
Visitors' space		✓	✓	✓	✓	✓	✓	✓
Storage room		✓	✓	✓	✓	✓	✓	✓
Facility room		✓	✓	✓	✓	✓	✓	✓
Size of windows		✓	✓	✓	✓	✓	✓	✓
Natural light		✓	✓	✓	✓	✓	✓	✓
Quality of the building		✓	✓	✓	✓	✓	✓	✓
Age of the building				✓	✓	✓	✓	✓
The environmentally friendly nature of the building				✓	✓	✓	✓	✓
Materials used in the building		✓	✓	✓	✓	✓	✓	✓
Insulation		✓	✓			✓	✓	✓
Cold and hot system		✓	✓	✓	✓	✓	✓	✓
New variables	Lift						✓	
	Basement			✓		✓		✓
	Swimming pool	✓				✓	✓	
	How far the home is from work				✓		✓	✓
	How far the home is from university	✓	✓					

8.7.1 Location

The participants stated that finding the right neighbourhood is important, as it could affect families and children, and the safety, security and cleanliness in the neighbourhood affects the quality. If a neighbourhood's name becomes famous, everyone wants to buy a home there because of that, even if it is actually not very good or lacks some services. Knowing the people who live in the neighbourhood also sometimes affects the buyer. However, some of the participants said that every neighbourhood has a distinctive part, so you could find in some neighbourhoods a part called the Golden Square and other titles, which indicates that it is better than the rest of the neighbourhood.

Some people prefer to have a home near to the city centre, where some choose to live in the suburbs, which have less noise and pollution, and have fresher fresh air. Most of the respondents agreed that the facilities in a neighbourhood are important, such as shops, library and hospitals. In addition to that, the proximity to things such as family, school, university or work are also important. For instance, the participants said that, whilst proximity to the family home was important in the past, when people should see their parents every day, now people have their own private homes and only see their parents two or three times a week. In addition, the distance to the place of work has become important, especially in a big city, where it could take three hours every day for the journey, and some people move house because of that.

Accessibility to the location and the size of the streets surrounding the house, and how far from public transportation the home is are also important elements discussed in the focus groups, as are having knowledge of the history of the neighbourhood and its soil. A good neighbourhood design and the provision of landscaping is desirable to consumers; for example, the neighbourhood design may ensure security because of the few entrances and ease of controlling access. In addition, the distance from highways and entrances to the neighbourhood, the

house's situation in the neighbourhood, the location of the neighbourhood in the city, the neighbourhood's residents and the home's direct neighbours are also important.

8.7.2 External Design

With regard to the main preferences for the exterior design that affect consumers when they want to buy a home, the participants identified land size, an outside garden, parking spaces and streets surrounding the home as important elements, which sometimes depend on the municipality regulation in the neighbourhood. However, the participants also stated that the exterior facades were important for some people. In addition, the external finishes and the materials were felt to be an important element for some consumers (women) as the form of the house's façade can be a cause for boasting about; some people may make additional payments to get a better façade. These aesthetic elements contribute to raise prices for some houses and the cost increases with the absence of some important elements. Some people also want outside gardens and swimming pools, whilst others do not mind. Those who do want outside areas will put up with a smaller built-up area in order to have additional space outside and have an outside seating area.

The culture of a society is very important and is very influential in this matter of buying a home. With regard to preferring a small house in the city or a big one outside the city, the some participants stated that they would prefer the larger space even if there is no need for it, and that there are many negatives to buying a house outside the city, such as a lack of services. Some people still think that a big home is still most favoured, but the truth is that not every large space is comfortable. There is a social influence on the popularity of big homes in that they are becoming a large burden on the families in terms of cost, bills and the need to service them more, and this has led to a change in the culture. Increasing the number of floors in a small space is a good solution, and this has contributed to meeting many consumers' needs, especially as the use of the roof floor is currently considered an easy option. In addition, it is a

very good solution to put the garden on the roof. Although in the past the roof was used for storage only, all the participants think that the increase in floors and making use of minimal spaceis a very positive feature offered by utilising the roof space. Most participants felt that a lot size of between 100 and500 m would be suitable for the Saudi family, which is linked to the number of family members, and also the building size.

8.7.3 Internal Design

There are many internal design preferences that consumers look for, such as number of rooms and toilets, which participants thought was dependent on the family members. Between four and five bedrooms was seen as suitable for the Saudi family in the long term. A room size of between 3m * 4m to 4m* 5m was felt to be appropriate, although consumers are often looking for more than that, but in terms of design space it is sufficient. With regard to the bathroom, the focus group participants preferred every bedroom to have its own bathroom, but felt that it was still all right to have one between two bedrooms. The living room is considered an important and influential element as it is the heart of the home, and participants thought that it should be 5m * 4m in size, preferably separated and not used for visitors, just for family. However, some of them said that the living room could possibly have multiple uses; it may be used as a place to receive guests if this was incorporated into the design, and then the visitors' room could be done away with. Visitors' rooms have become a very expensive component, used only for a little while, and they cost a lot, and take up 30% to 40% of the area on the ground floor! At this time there have been some changes in consumer preferences, whilst in the past there was a place for two visitors' rooms, one for men and another for women, also there is a reduction in the size of guest rooms now. Moreover, it is possible that the outside facility room is becoming used as a visitor room. Many of the spaces in the home that are not used on a daily basis are unused because they are dedicated to visitors, for example, which originated from social and cultural factors. A lot of elements are not usable, but consumers

look to the future and the possible need for them, and the impact of the community is the main determinant in the home design.

With the modern designs and reduction in the number of walls, the home will be functionally comfortable. There is a change in the modern designs, with the addition of open spaces, which is preferable, but these homes are sometimes designed in a way that not socially acceptable. For example, putting an open kitchen on the house leads to the spread of cooking smells in the house, which is not suitable for the Saudi family, although some consumers think the living room could be open-plan and lead to the kitchen. In addition, with regard to the storage room, participants prefer to have it near to the kitchen.

Privacy is very important and must be processed either under the steering of buildings and windows properly, there are also privacy spaces within the home where family members should be given the insulation between the house elements. The distribution and function and the preservation of privacy is the role of the designer, such as placing the entrances at the side of the building, and the separating the visitor section from the family home and enabling the family to maintain their privacy from the neighbours. One of the important elements in the design is the natural lighting, as it creates a lovely atmosphere in the home and reduces electricity consumption. This depends on the size of the windows, even if they do not open to provide lighting, and are thermally flawed, it is possible that they have been placed to avoid the heat. Large windows can be expensive with the heat air and dust, but are favoured because of the need for natural lighting.

8.7.4 Home Specification Details

Air-conditioning is important and a central air-conditioning system is more desired by people, but it is expensive, the extension for the air conditioning important from the beginning, however air conditioning is essential for all rooms. In addition, consumers want the presence of insulation both inside and outside the building because it contributes to reducing costs.

Insulation has become a mandatory requirement from the government in all houses, and could reduce energy costs by about 30%. In general, people do not know much about home quality; based on trust of implementing real estate company who built the homes. People consider only the visible materials used either inside or outside the building, as it is difficult for the average consumer to understand issues concerning quality. The finishing apparently affects the quality of the construction, the fact that not a lot of people bring competent parties to examine the house before they buy it, although there are many companies that can provide reports on the quality of a building.

The age of the house is important, where new houses are seen to be better than older ones and are therefore preferred, but, on the other hand, if buying a previously owned house it is very important to know the age of the building; the participants felt that it should not be more than 5-7 years old, as the age of the house could affect its quality. However, one of the benefits of buying a previously owned house is that the materials used in earlier times are generally better than the materials used now, and this could be a positive feature for previously owned homes.

With regard to green and sustainable buildings, the participants thought that real estate development companies were not interested in this matter because the consumers are ignorant of it, there are some category of educated people are looking for this building. The government should educate people about the benefits of this type of building.

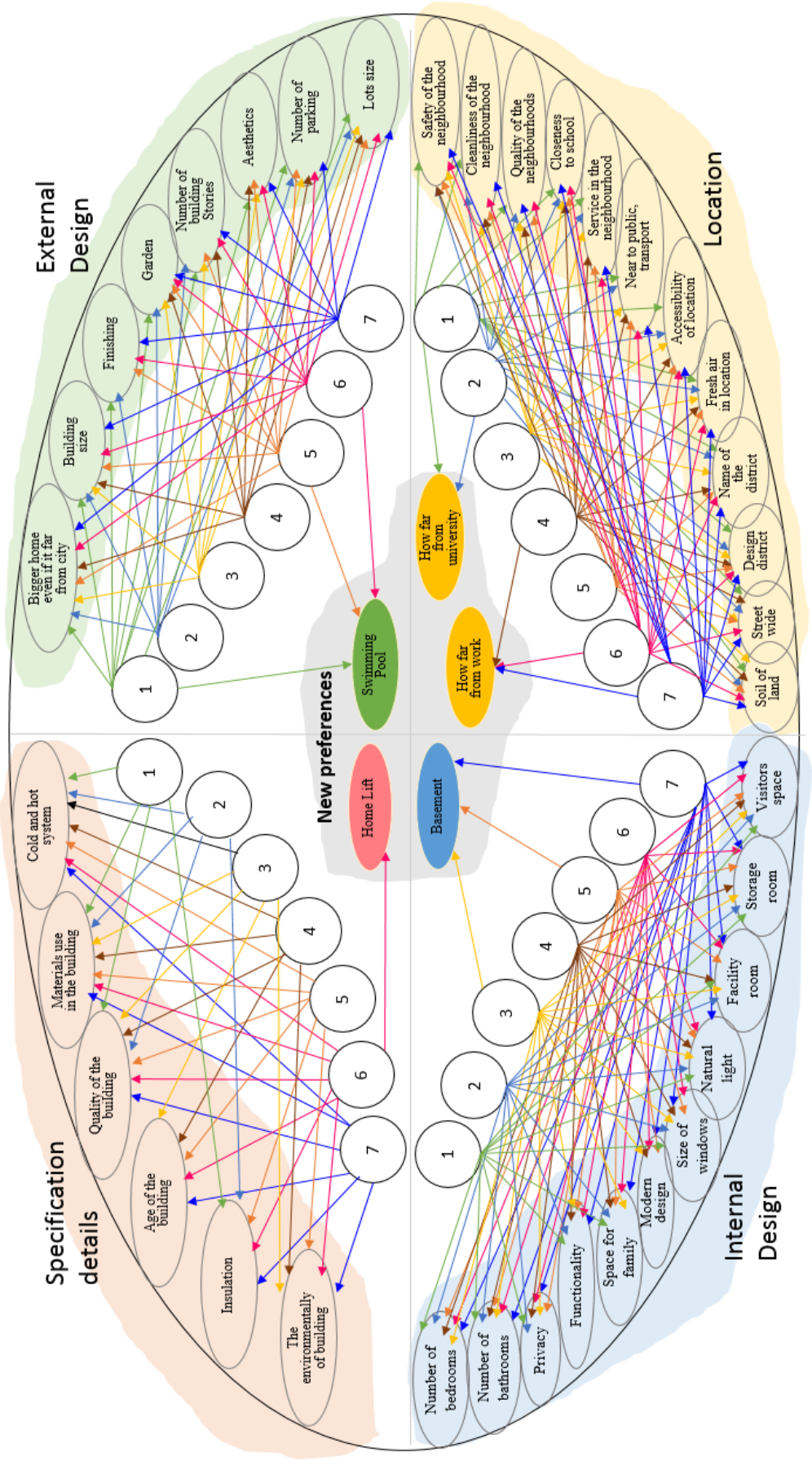

Figure 8-10 Representation of the participants' preferences in the focus groups

8.8 Summary of the Chapter

This chapter has identify the differences between the questionnaire results; moreover it has explained the idea of the models and integrated both models to show the four different options of priority for the consumer when looking for a home. The final model shows the differences and gaps between the consumers' preferences, which are on the demand side of the real estate market, and the professionals' views, which are on the supply side. In the final model, there are four options and each one has different stages; two options from 752 respondents in the consumer questionnaire and two options from 102 respondents in the professional questionnaire.

Option (A) contains six main priority stages, option (B) contains four main groups, option (C) contains 10 main priority stages and option (D) contains four main groups. There are three important factors in the consumers' views about the location of the home: the quality, the name of the district and the services in the neighbourhood. However, the professionals' view is that the consumer has five important concerns when choosing the location of their home: the neighbourhood location and design, the environment and services in the neighbourhood, the quality and safety, the accessibility and street width, and, finally, the name of the neighbourhood.

In their views about the external design, the consumers have one focus, the design of the building, while the professionals think the consumers look at three factors: the size, the quality and the footprint. With regard to the internal design, when they buy a home the consumers view the design and functionality of the building and the natural light and extra space as the most important factors. On the other hand, the professionals think that the consumers look at the environment and visitor space, the number of bedrooms and bathrooms, the extra space and privacy, and the functionality and modernity of the design.

With regard to the home specification details, the consumers focus on one factor (the home quality), while the professionals think the consumers look for environmentally friendly buildings and at the building age and quality. In the validation, this study used a focus group method, where focus groups were conducted with both consumers and professionals. Five new variables were introduced by participants in the focus groups: having a lift at home, having a swimming pool, having a basement, how far the location is from work, and how far it is from university.

Chapter 9: Discussion and Conclusions

Chapter 9: Discussion and Conclusions

9.1 Introduction

The overall aim of this thesis was to identify the housing problem in Saudi Arabia and develop a model of consumer housing preferences. Moreover, this thesis and respectively the research effort were split into nine chapters. Chapter one delivered the introduction to the research, its background and problem, and also explained the research proposition, aim and objectives. This chapter moreover provided an overall picture of the whole thesis and how the objectives linked to the chapters.

Chapters two and three offered an overall understanding of the current relevant knowledge as the primary result of a critical literature review focusing on the housing problem and consumer preferences. These chapters vindicate the need for this topic and provide a strong theoretical background as the foundation for the research. In addition, the author was able to learn from former research experiences, good and bad in kind. Finally, the knowledge that was gained directed the development of the consumer preferences model and enabled it to be validated with realistic consumers and tested.

The fourth chapter reviewed the research philosophy, logic, methodological choices and approaches in order to join those into a good research structure that provided answers to the research question and achieved the aim and objectives of the study. Thereafter, the fourth chapter also presented the methodology and the reason for every method used in this research. Moreover, this chapter clarified the steps for the data analysis and ranking as well as the model validation strategy used to obtain trustworthy and useful results.

The consumer and professional questionnaires were presented in Chapter five, which included the analysis and findings of the collected data from the questionnaires, interviews and focus groups. In addition, the descriptive analysis and data ranking were also presented in this

chapter. Chapters six and seven presented the data analysis for the consumer and professional models; these two chapters provide data analysis by which to develop the models, and descriptive statistics for the results. Moreover, the final stage in both chapters is the factor analysis, which is a method by which to regroup the variables to build up the models.

In Chapter eight the questionnaires were compared by using the mean scores, and then they were integrated and the consumer and professional models were presented in order to find the final version of the consumers' preferred housing model. Moreover, the model was validated at the end of the chapter.

This last chapter presents the research effort and its main results, answering the research proposition. The following section provides a brief summary of the research. This is followed by conclusions for the whole research and how the aim and objectives were achieved. Finally, the contribution to knowledge and the research limitations are put forward, together with recommendations for future work.

9.2 Achievement of Research Aim

This research used a mixed-methods approach – quantitative (questionnaire) and qualitative (interview and focus group) – involving three different methods to find the main research aim: The aim of the research was **to develop and validate a model for housing preferences and choices in Saudi Arabia for new homes, which encompasses multiple stakeholder views.** The research aimed to create a new way of thinking by looking at the relationship between the housing problem in Saudi and consumer preferences. To achieve this aim systematically, the following objectives were devised:

1- Investigate the housing problem in Saudi Arabia and the role of the private sector, in order to determine the factors that influence homeownership and the reasons for the lack of homeowners.

2- Identify the key factors that influence housing preferences and determine the priority order of such factors, for the new homebuyers.

3- Develop a model that reflects housing preferences in Saudi Arabia for the new homes, by integrating consumer and professional views of home preferences.

4- Validate the model, which will aid in the provision of suitable housing in Saudi Arabia.

9.3 Discussion and Implications of the Research

In this thesis, the proposition of the research to ask if a model that represents housing consumer preferences, based on stakeholder views, can inform housing policy and practice in Saudi Arabia. In order to find out the home preferences, the home variables and the housing stakeholders had to be identified. Moreover, the model was designed to include the home variables based on stakeholders' views; which will be useful for the housing situation in Saudi. However, the main aim was to develop and validate a model for housing preferences and choices in Saudi Arabia, which encompasses multiple stakeholder views. Figure 9.1 shows the steps to achieve that aim, where the study started to identify the importance of housing and the factors that influence homeownership at a societal, family and individual level, with a framework of consumers' behaviour and example of a home model.

The research then touched on analyses of the background of the housing problem, and the current size and influence of the housing problem. After looking into the problem, the study found that identifying and knowing the consumers' preferences was one of the main elements to solving the housing problem, where it identified the home preference factors by selecting the appropriate variables for housing to understand the priorities. These home variables exist around the world, and there are various determinants for them, whether cultural or social. Because of the large number of home preferences, this study then looked at the home preferences specifically in Saudi, identifying the important variables by which the Saudi home is measured. After collecting all the variables, the next step was choosing the right methods to use, to reach the right result, and here stakeholder participation was important in the

development of a model that would assist them. Questionnaires were designed for consumers and professionals in order to gather the data, and then the study ran some tests for hypotheses such as the differences in housing preferences between genders, and based on people's regions and jobs. Moreover, the data were tested by performing factor analysis to create the final model, which reflects the consumers' and professionals' views, to help find a solution for the housing problem and aid in the provision of suitable housing.

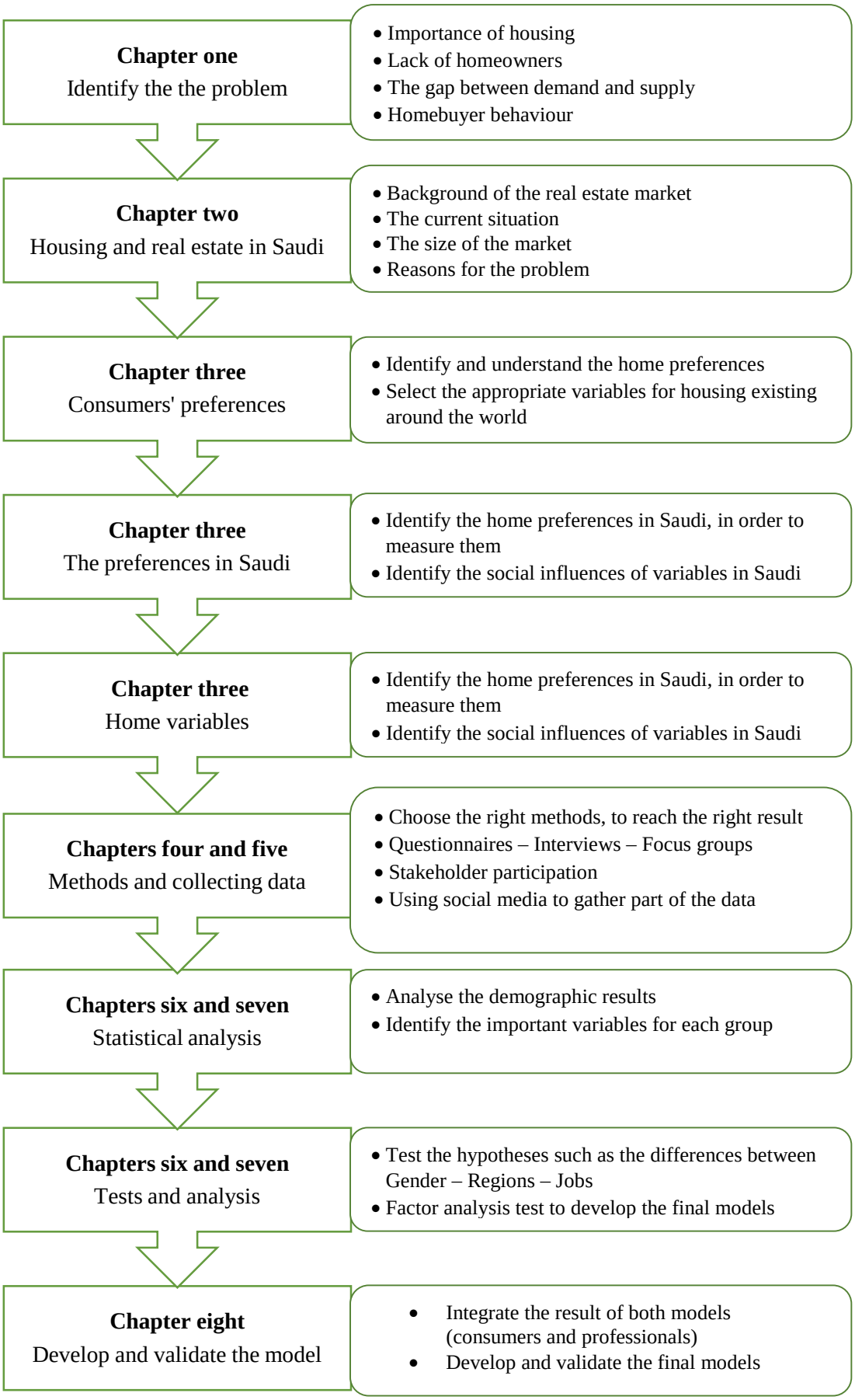

Figure 9-1 The steps that were achieved to reach the research aim

9.3.1 Investigate the housing problem in Saudi Arabia and the role of the private sector, in order to determine the factors that influence homeownership and the reasons for the lack of homeowners.

Everyone has the right to own a home; the lack of home ownership will have negative social, cultural, economic and moral effects on a community. However, there is currently a housing problem in many countries, and Saudi Arabia is one of the countries facing this problem. The result of this thesis showed that home ownership levels are low, but there are as yet no clear solutions to this problem, and it is affecting society. Some commentators think that owning a home is the individual's responsibility, through saving up and purchasing a home, where others feel that the government is responsible for the problem, via regulations and controlling the market, which contributes a great deal to increasing the proportion of home ownership, especially as the lack of ownership may affect the state politically.

Generally, owning a home is one of the necessities of life, where it increases the loyalty, confidence and satisfaction of citizens, and offers freedom and safety to the family. In addition, it is of value to people, part of the proportion of the monthly expenses connected to people's lives. The housing problem in Saudi is huge and affects a large number of citizens, which has led to it being mentioned in different reports, both internationally and locally. There are different faces to the problem, starting from the individual level to the community culture and behaviour side, up to the government regulations and organisations, which are linked to developers.

By identifying the problem, it is clear that the accelerated migration and the population explosion are the main reasons for it; however, the housing culture in Saudi has also contributed to increase the problem. The rapid changes and financial boom in Saudi Arabia have produced a new housing culture, which has become a tyrant in Saudi cities, such as in regard to the divided spaces in the neighbourhoods and home sizes and design. Since all of those things

happened with the blessing and acceptance of the government, where they developed the conditions and controls in accordance to that stage, which was not commensurate with the current situation and the large demand for housing, this led to a gap between supply and demand, and a big gap in ownership rates, which decrease every year, and resulted in Saudi cities expanding accidentally rather than in a planned way. With this increase in housing demand, inflation, and variations in income levels, the prices of homes increased massively, and the majority of citizens become unable to afford to own homes. The fundamental cause of the increase in the prices of homes was found to be the land price, which has become more than 60% of the home's value, compared with the normal condition that it should not be more than 30%; that increase is linked to the land monopoly, where now more than 60% of the urban land in Riyadh is undeveloped (Century21, 2015).

This led to the real estate market being dominated by land speculation, which became a real estate activity, and selling land became a way for people to become rich, and so a significant real estate bubble led to the current problem. By using different bodies, the government tried for five years to deal with problem, providing about SR250 million (about £40 million), but this had no result in reality, either in through the Ministry of Housing's projects or through reducing the home and land prices. It remains the case that developers, traders and citizens waiting for new real estate legislation may contribute to solving the problem, such as through land taxes. However, the developers complain about the delays and bureaucracy of dealing with new projects, in addition to the home build regulations, which have contributed to the persistence of the problem. The demand for new homes is now up to 1.65 million units, and the supply of homes is disproportionate to the desires and financial capabilities of the citizens. Furthermore, homes in Saudi Arabia have become the most expensive in the world compared to citizens' average income.

As with any market, the real estate market is structured on supply and demand, where the consumer behaviour is consider as the main driver in the real estate market, which affects the buying decision (Quester et al., 2011) and influences homeownership in society. The behaviour patterns are linked to the consumer preferences, and are furthermore in line with consumer psychological motivation, perception, learning and memory, where this psychological motivation depends on the buyer's cultural, social and personal characteristics. Kotler and Keller (2009) identify that the decision-making involved in buying provides a clue about the consumers' behaviours, which start by problem recognition, searching for information, evaluation of alternatives, and end with the purchase decision and post-purchase behaviour (Blackwell, 2006; Kotler et al., 2009). Knowing how consumers decide on their housing preferences and way they make the final purchase decisions leads to understanding the influence of homeownership in society, where linking consumers' (homebuyers') needs with sellers' (developers') supplies, by identification of housing variables was important to complete the research.

The new and improved products which possibly the Ministry of Housing and developers will deliver need to measure the preferences and knowledge of the needs of the people, which could contribute to reducing costs and getting the best quality in the final product. The changing of the home preferences measure may especially be affected according to several factors such as geographical, educational level, income and cultural changes; all of these have an impact on people's lifestyles, resulting in changes in behaviour, particularly in a big country such as Saudi Arabia. Preferences are affected by a consumer's needs and the desires of others, which sometimes leads to linked choices, where choices can be similar through social relations (Yang, 2003). However, preferences are constant, dynamic operations, based upon the consumers' behaviour (Bako et al., 2009). This may lead to the Saudi consumer being influenced by the

community and not making choices based solely on his/her own needs, but in agreement with the community.

The housing market reveals four primary rating categories (Nelson et al., 1988). These start with variables for improvement, accessibility and location, the neighbourhood, and the services features, and the models in this study cover the housing needs, which are subject to policy issues and personal perceptions (King, 1996). However, the idea of need in housing is relative (Whitehead et al., 1992). For example, even when a consumer has a suitable home he might try to improve it and look for what is missing, as he sees it. Furthermore, the quantitative models of consumer as homebuyer often focus on the individual preferences, not the family's view (Yang, 2003). In the process of model choices, there is no one solution for the design problem. In addition, the decisions made by experts and specialists are not necessarily the best decisions or better than the average person's; however, providing choices between alternatives could help to find solutions and the options could be rich in ideas (Sanoff, 1988). This study provided four different models, representing the consumers' views, which are the most important, and the professionals' views about what they think is suitable for consumers and what they think consumers actually want, and offered possible solutions by looking at the home preferences in Saudi, to fill in the gap between what the developers and the consumers think.

9.3.2 Identify the key factors, which influence housing preferences and determine the priority order of such factors, for the new homebuyer.

This process started by identifying the home preference factors by selecting the appropriate variables in order to recognise and understand the priorities. With regard to the housing preferences, there are several options linked to consumers' benefits (Hawkins et al., 2011). Gathering the variables that affect the homebuyer's decision is complex; there are multitudes of elements, which differ between countries, and each country has different specifications. This study looked to previous models in Nigeria and China, were both models provided some of the

main elements of home buying, without detailing the home preferences for the homebuyer. Other research provided important variables without developing a country model. However, the main variables are similar, such as space for daily living: sleeping (as in bedrooms); eating (as in kitchen facilities); excreting bodily wastes and grooming (as in bathroom facilities); living (as in living area); and maintaining the home (as in utility area) (Sirgy, 2005). However, the main housing factors include different categories: internal housing variables and external housing variables (Cupchik et al., 2003), in addition to the location's facilities and services (Pasha et al., 1996). Moreover, identifying the financial situation led to finding out the problem and designing the models in this study. Users' preferences differ from one country to another, where the cultural and social factors in the community need different requirements from one place to another (Yang, 2003), and the main factors in this study covered most of the variables that are relevant to Saudi homebuyers. After identifying and looking at different sources about consumers' home preferences, this research designed 11 variables regarding the internal factors and 8 variables regarding the external elements. 13 variables were determined for neighbourhood and location preference. In addition, 6 variables were included for the home details, which contribute to making the home environment better for living in. The main idea of the research methods was to measure the variables by involving the stakeholders of the housing problem, because this research is focused on consumers. To give a suitable result for the consumers, developers and the government, the models were designed according to their views. Questionnaires were used as the main way to reach the stakeholders, which provided the best opportunity for social measuring. Moreover, the use of an online questionnaire gave the researcher the opportunity to publish the survey using social media applications, and enabled the study to make more contribution to knowledge, because social media has a major social influence in the world and is an important movement in Saudi lives. It was a very

beneficial way of gathering information; the number of respondents was 752 for the consumers and 102 for the professionals.

The questionnaire results show that about 36% of the respondents are female, which was much higher than previous studies such as Opoku (2010), because it is not usually easy to reach female respondents because of the Saudi culture. With regard to the age of the respondents, the results show that about 46.6% are under 31 years old, which is normal when we know that 61% of Saudis are aged between 15 and 26 (JEF, 2013). The results also show that 37% of respondents earn a monthly income of less than SR7000 (£1200), which might be due to their young age; however, it is less than the salary average in Saudi (Alrajhi Bank Capital, 2013; SAMBA, 2010). Additionally, 77.8% of the respondents are from three regions to which many people migrate: Riyadh, Makkah and the Eastern Province (Bank Saudi Fransi, 2011). In addition, the results show that 50.4% of respondents live in flats, which indicates a change in Saudi culture, as in the past most Saudis did not like to live in multi-storey buildings. With regard to owning their home, the results show that about 45% are renting their homes, whilst the Century21 (2015) report states that 60% of the citizens in Riyadh rent their homes. With regard to the financial variables, the consumers stated that the increase of prices in the housing market affects the Saudi citizens financially, whilst the professionals thought it was third most important, which was expected, especially when looking at the percentage of homeowners in Saudi, which is about 30% (Century 21, 2013). Then the consumers thought that the increase in land prices was only one of the reasons for the housing problem, whilst the professionals viewed it as the most important variable as land prices have greatly increased in the last few years (Riyadh News, 2013).

Considering whether the Ministry of Housing work completed since 2011 has made a significant impact on the housing market, about 30.1% of the consumers strongly disagreed and 20.6% disagreed. In total, 50.7% felt that the work the Ministry of Housing has completed

since 2011 has not made a significant impact on the housing market. With regard to the professionals' views, 35.6% strongly disagreed and 36.6% disagreed, an overall total of 72.2% who felt that the Ministry of Housing's work had not impacted on the market. This result shows the general lack of confidence about the Ministry's work and suggests that it needs a change of strategy from delivering homes to delivering land with infrastructures; however, the changes it gave people less confidence in the Ministry. With regard to the location factor, the consumers viewed the safety of the location as the most preferred variable, as feeling safe at home is important (Jabareen, 2005). Next comes cleanliness, which reflects the neighbourhood quality (Al-Momani, 2003). However, the professionals selected neighbourhood services as the most important variable for homebuyers. This is followed by closeness to relatives and family. In the interview with Mr Al Rasheed, he said that new families now prefer to live in new neighbourhoods rather than living in the old neighbourhoods with their extended families, and he mentioned that different views were held by the old and young generations. However, how close the home is to public transport is bottom of the list for both questionnaires, which was expected because of the lack of public transport in Saudi Arabia, where cars are the main form of transport.

In the external design variable, the consumers viewed the type and quality of finishing, such as painting and flooring, which could affect the homebuyers' choice (Vedia DoÈkmeci, 2000), as the most preferred variable; however, the professionals viewed it as second in importance, whereas the second most important variable for consumers was the large lot size, as people prefer a larger home even if there is no need for it (Opoku et al., 2010). The professionals said that the aesthetics and building design was the most important variable. For example, in the interview with Mr Alnouahel, he said that the Ministry of Housing considers the face and finishing as important consumer preferences, and they try to apply that in their projects. The lowest-placed variable for both questionnaires was the number of parking spaces, although it

is beneficial for some homes to have at least one (Matías, 2009). With regard to interior design variables, the functionality and spaciousness of the design was the most preferred variable for both questionnaires, as homes need to be fitted with certain requirements and utilisation of the space is important (Al-Otaibi, 2004); having the right home design at the beginning means that homebuyers can avoid making changes after they have moved in. After that, the consumers think that privacy from neighbours and visitors is important, which is a cultural issue in the Middle East (Gibler et al., 2014). However, the professionals think that a modern design, such as an open kitchen and open spaces, is also important for homebuyers, especially those with young families (Alajme). The lowest-placed variable for both questionnaire was the size of the windows, where the hot weather could be the reason for the lack of importance of this factor. With regard to the house size, nearly half of the consumer respondents (43%) prefer a house size of between 500 m and 700 m, whereas almost half of the professional respondents (48.5%) think consumers prefer a house size of between 250 m 300 m. This indicates a significant difference between the two types of respondent; moreover, the professional view is much more realistic, as choosing a big home is a cultural thing: people prefer a larger home even if they do not need it (Alajme, interview). Where it could be also because it better for developers from a financial perspective to provide smaller homes, as it means they can squeeze more houses (and thus make more money) onto one piece of land.

This was also reflected in the preferences for room size: over a third of the consumer respondents (37.5%) prefer the bedroom size to be 4*5 m, whilst over two-thirds (68.3%) of professionals think a room size of 4*4m is preferred, where design elements in a 4*4m bedroom could meet the buyers' requirements (Nuefert, 2013). As for number of bedrooms, whilst just over a third (35.2%) of consumer respondents prefer to have five bedrooms, just over half of the professional respondents (55.4%) think buyers prefer to have three bedrooms. The average

Saudi family has six members (CDSI, 2013), so consumers may feel that three bedrooms may not be enough to provide the required levels of comfort, space and privacy.

In the home specification details variable, the quality of the building was the most preferred variable for both questionnaires; this is explained by the high price of property, which causes citizens to start looking at the quality in depth, which is one of the requirements for a bank mortgage (participant A, interview). The lowest preference for both questionnaires was the environmentally friendly nature of the building, which was expected, because there is a lack of information about the benefits environmental features provide to the housing stakeholders in Saudi (Bahammam, 2001).

After the statistical analysis, the study looked to test different hypotheses such as what effect factors such as consumers' gender have on their preferences, and the output shows variation in 11 variables, most of them financial. In Saudi, the man is counted as the main homebuyer, and it is seen as his responsibility from the cultural and religious sides. However, in the external design factor, females gave a different (lower) ranking than males in one variable, which is the width and number of parking spaces, which was to be expected, especially when we know that women in Saudi Arabia are not allowed to drive, and that may affect their views about parking spaces. Finally, with regard to the internal design preference, there is a statistically significant difference in the three variables, the house size, kitchen size and the number of bedrooms, which is realistic because housewives look at the home space differently.

The second hypothesis looking at differences in preferences considered the consumers' region. It was found that respondents from JAWF gave statistically significantly different rankings of importance to respondents in the other regions. JAWF is in the north west of Saudi, close to the Jordanian border, so this could be a cultural effect from Jordan.

The third hypothesis for differences in preferences related to the professionals' jobs, where respondents who work in the government gave more statistically significantly different rankings of importance than the others, and this could be because they are involved with the housing problem directly through their government jobs.

9.3.3 Develop a model that reflects housing preferences in Saudi Arabia for the new homes, by integrating consumer and professional views of home preferences.

After testing the hypotheses, the next step was performing factor analysis to regroup the variables and develop models that reflect consumer preferences for housing in Saudi Arabia by using the home variables. One of the main aims of the Saudi Arabian government is to provide housing policy that ensures suitable and secure conditions for consumers. This aim has been stated in all the government National Development Plans, where the homes' programmes have been categorised to the public housing sector and the private housing sector (Alotaibi, 2004), and this research tried to identify models to assist these sectors. The models for consumer preferences establish the desires and requirements of the consumers in relation to the housing sector in Saudi Arabia. The models tried to frame the problem, and identify the requirements which are favoured by consumers, and build from this knowledge, to assist in solving the housing problem, according to the needs and the desires of the beneficiaries and within the laws and regulations of the government in the designing and building of houses. There were four models presented to help the stakeholders, which represent their views of the important variables from all the preferences, and the important ones in each main group.

Model A provides the consumers' view for all the variables and includes the categories the consumers think are important; this model could be helpful for developers and the government when they want to find out the consumer preferences and the main groups. However, model B identifies each main group in every factor, which could also help developers and the government to know the important point for consumers in each factor. This information covers

part of the knowledge gap regarding consumers' desires, which is necessary for developer stakeholders (Opoku et al., 2010). On the other side, models C and D, which represent the professionals' views, could assist professionals to understand the differences between their views and those of consumers. It could also help the individual developers to know the professionals' views, where these models give the individuals a chance to rethink and make a decision, as sometimes consumers do not think about homes over the long term (participant A, interview), but the professionals' views could help them do this. In addition, this research tried to identify models to assist these sectors.

9.3.4 Conduct a Validation of the Final Model

As a final step in the thesis, validation of the final model was conducted that will aid in the provision of suitable housing, where the model's main goal is to show the developers' and the consumers' opinions, to identify the preference categories. Furthermore, qualitative focus groups were conducted with consumers and professionals to validate the models. This is one of the suitable ways in which to validate social views (Nurse, 2015). Validation of the model development is carried out to confirm the robustness and effectiveness of the model results and identify any missing variables in the earlier models. The participants in the model validation were varied; there were normal consumers and professionals, and both men and women were included. The main question asked to each focus group was: what are the key elements that you look for when you want to buy a home? Moreover, the conversation flowed in discussion of the question. New variables appeared from the validation that could influence consumers' home-buying behaviour: having a lift, swimming pool, basement, and how far the location is from work and university. Although this latter variable could be important, it is changeable, as residents could change their workplace or complete their university course. Nevertheless, it is still something people think about for the short term (Kauko, 2006). A basement is useful as it provides more space, especially for small homes, although it adds to the initial house price. A

swimming pool is a luxury item, although it still may be beneficial for a home to have one. However, having a lift at home has become common in Saudi, as it is useful for older people to access upper floors, although people have started to put the older people's room on the ground floor to make access easier (participant six from the focus group).

9.4 Theoretical Contribution to Knowledge

- The primary achievement of this thesis is the identification and definition of home factors that can influence consumers' behaviour in seeking, gathering and analysing the home preferences, in order to create a home preferences model to help before purchasing a home.
- This study identified the home variables, and the final model was founded and designed based on theory and the development of a better understanding of the consumers' needs and wants from their homes.
- The model in the study is based upon multiple stakeholder views, which provides a suitable result for both homebuyers and developers.
- The methodology of this study for the consumer home model has been based upon factors connected with the homebuyers' behaviours and has linked this to the main home factors.
- The financial factor, location factor, and internal and external design factors are used as the main themes in this research, where the home variables come under these groups. Figure 9.2 shows the theoretical framework of the research the main categories from which the final model in this study was designed.
- The models in this study are a result of consumer preferences for all the variables and for each factor, to clarify the differences, where the consumers' and professionals' views are also compared to identify the differences between the suppliers' views and the buyers' views.
- This study could compensate for the lack of information that the Ministry of Housing complains about, by providing some results that may assist in solving the housing problem,

as it provides Saudis' views and expectations about the problem, and their ambitions regarding homeownership. It also measures the changes in the community with regard to current home preferences compared to those from previous times.

- The study produced and developed models that will assist the section of the private sector that delivers homes, and the Saudi government and local authorities, such as the Ministry of Housing, to explore the consumer preferences for planning land, which will enable the citizens to design their own homes.

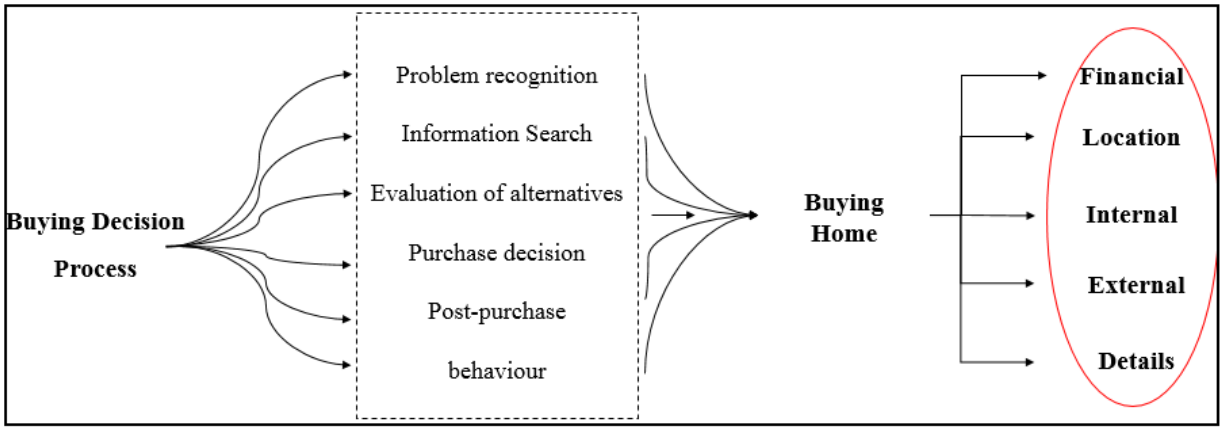

Figure 9-2 The theoretical framework of the research

9.5 Limitations and Generalisation of the Research

PhD research often faces limitations in its scope caused by a lack of resources or data, multiple areas of information, or lack of time and/or funding (Sekaran et al., 2009). This research was limited by some factors, and so there is a limitation in the final stated model, as complexity in social research is caused by the differing demographics of the respondents in the research survey, the use of an online survey via social media, and because its design may not reach the whole population. The use of social media enabled the questionnaire to be widely spread;, however, people who do not use social media would not have seen it, which is a limitation of this method. The weakness of information from and studies by the Saudi government about the

housing problem makes their statistics different from those in the literature review, and the minister for housing has complained about this on several occasions.

In this study, professional people working in the housing sector were involved in both questionnaires, as their opinions as consultants could be different to those when they are looking at homes as homebuyers, and that could influence the model. In addition, this study only focused on individuals' opinions whereas sometimes home buying is a family decision. AlsoIn addition, it only investigates the behaviour of homebuyers who buy a home to live in, whereas some homebuyers buy a home as an investment, to rent it out. Additionally, although this research has briefly discussed financial sources and which ones consumers in Saudi normally used when purchasing a home, the financial problems and financial details such as loans and mortgages need an expert in accounting and business to evaluate them.

In addition, this study includes both genders in one model; there is not one model for males and another for females. Furthermore, when collecting data in Saudi there is a limitation when trying to access women's views, because of the split in culture between genders, which is not seen in many other cultures around the world. However, in this study, 36% of respondents to the consumer questionnaire are women, and two of the seven participants in the focus group are women, which is an acceptable number for a study in Saudi, if not for other countries. Furthermore, the literature review showed a variation in each country's home preference priorities, where the social and cultural conditions affect the choices and buying decisions. However, the generalisation is limited;, this study was designed solely for Saudi Arabia, and so the findings might not be applicable to another country.

9.6 Implications for Future Work

Further research into the field of consumers' preferences in housing is fundamental for the real estate industry. The consumers are the cornerstone in housing projects; knowledge and

identification of their needs and wants is essential to provide them with a better environment and lifestyle. This is linked to different theories, such as consumers' behaviours, cultures, homebuyers' decision-making, home theories, etc. This bifurcation in the subject provides the opportunity for further research.

This research has contributed to identifying the housing preferences in Saudi; the different categories of factors that support the study and the hypotheses used were drawn up out of constant reflection and data testing. This study developed factors and looked into some hypotheses and analysis, which could be tested and analysed in more detail, which would be a project for further investigation into consumer preferences in housing, and which would provide a background for future research in Saudi or in the rest of the world. For example, the model could be tested in other countries in the Middle East and North Africa (MENA) region, where there are social, cultural and environmental similarities.

It would be beneficial for future work to look into homebuyer decision-making in couples or at the family level. Linking the variables in this study with cost value and identifying how much each variable costs could also be a feasible study, which could be connected with home buying for investors and what features they pay more for. In addition, exploring the change in the homebuyer and family lifecycle, and the changes and needs in preferences for each stage, is a substantial area to research. However, identifying the several home cultures and the differences between countries, and how this diversity is active within the modern world, is an intrinsic topic for future study. As part of the research methodology, social media was used to share the questionnaires, which was a sensational experience, and so future study about the consumers' preferences could be conducted through social apps, which will offer a great opportunity to test and explore a new area of research.

References

Aawsat (2008). Establishment of the first Council of Saudi Green Building, Subjects them for 5 standards cut energy consumption to around 40%. http://archive.aawsat.com/details.asp?section=43&issueno=10919&article=491417&search=%25D9%2584%25D9%2584%25D9%2585%25D8%25A8%25D8%25A7%25D9%2586%25D9%258A-%25D8%25A7%25D9%2584%25D8%25AE%25D8%25B6%25D8%25B1%25D8%25A7%25D8%25A1&state=true/details.asp#.VvFJreKLTcs. [Accessed 3/2016.]

Aawsat (2013*). Saudi king authorizes the Department of Housing mechanism granting citizens land and loans*. http://aawsat.com/details.asp?section=4&article=724980&issueno=12559 [Accessed 2/10/2013.]

Abdulaal, W. A. (2012). Large urban developments as the new driver for land development in Jeddah, *Habitat International*, 36(1), pp. 36-46.

Abrami, P. C. (2010). On the nature of support in computer supported collaborative learning using gstudy. *Computers in Human Behaviour*, 26(5), 835–839.doi:10.1016/j.chb.2009.04.007. [Accessed 21/09/2013.]

Ackroyd, S. and Hughes, J. (1992) *Data Collection in Context* (2nd edn). London: Longman.

Adedayo Folaranmi. (2012). User Participation in Housing Unit Provision in Kwara State Nigeria: A Basis for Sustainable Design in Mass Housing Design. Department of Architecture Federal University of Technology, Minna, Niger State. http://journal-archieves19.webs.com/723-732.pdf. [Accessed in 5/2014.]

Agarwal, A., Xie, B., Vovsha, I., Rambow, O., and Passonneau, R. (2011). Sentiment analysis of Twitter data. In *Proceedings of the Workshop on Languages in Social Media* (pp30-38). Association for Computational Linguistics.

Akhbaar24.argaam.com (2013). *More than 1.3 million grant request will be delivered to the Ministry of Housing* http://akhbaar24.argaam.com/article/detail/136933/ [Accessed 2/10/2013.]

Al khaleej news, (2014). Commitment to green building standards a condition for the granting of building permits in Dubai. http://www.alkhaleej.ae/alkhaleej/page/395bf31f-1a8d-404d-b2aa-4c626484139a. [Accessed 3/2016.]

Al Rajhi Capital, (2013). *Saudi Mortgage Law*. http://www.alrajhicapital.com/en/research/Pages/investresearch.aspx. [Accessed 20/9/2013.]

Alarabiya.net (2013). 2.*6 million Saudis on waiting lists for housing*. http://ara.tv/6pvk3 [Accessed 24/9/2013.]

Alfouzan, A. S. (2013). *Analysing the Factors that Lead to Housing and Construction Cost Escalation*, MSC Thesis. Western Kentucky University. http://digitalcommons.wku.edu/cgi/viewcontent.cgi?article=2234&context=theses [Accessed in 10/2013.]

Al-Hathloul, S. and N. Edadan, Eds. (1995). *Urban Development in Saudi Arabia Challenges and Opportunities*, Riyadh: Dar Al Sahan.

Aljoufie, Mohammed. (2013). Toward integrated land use and transport planning in fast-growing cities: The case of Jeddah, Saudi Arabia. *Habitat International*, 41 (2014) pp. 205-215. Available at http://ac.els-cdn.com/S0197397513000945/1-s2.0-S0197397513000945-main.pdf?_tid=7b48e400-2c32-11e3-8582-00000aab0f6b&acdnat=1380808288_ed887a246e2d342098ef6fbf6615a128. [Accessed 15/2/2014.]

Aljazeera channel web, (2015). *Saudi Arabia announced a new price for gasoline and energy*. Available at http://www.aljazeera.net/news/ebusiness/2015/12/28/%D8%A7%D9%84%D8%B3%D8%B9%D9%88%D8%AF%D9%8A%D8%A9-%D8%AA%D8%B9%D9%84%D9%86-%D8%A3%D8%B3%D8%B9%D8%A7%D8%B1%D8%A7-%D8%AC%D8%AF%D9%8A%D8%AF%D8%A9-%D9%84%D9%84%D8%A8%D9%86%D8%B2%D9%8A%D9%86-%D9%88%D8%A7%D9%84%D8%B7%D8%A7%D9%82%D8%A9. Accessed in 20/02/2016.]

Al-Kurdi, F. (2002). *The labour city in Dammam: An analysis of its house forms. Advanced workshop ARAR 602*. King Faisal University KSA.

Al-Momani, A. H. (2000). Structuring information on residential building: a model of preference. *Engineering, Construction and Architecture Management*, vol. 7, issue 2, pp. 179-190.

Al-Momani, A. H. (2003). Housing quality: implications for design and management. *Journal of Urban Planning and Development*, vol. 129, issue 4, pp. 177-194.

Al-Otaibi, A. (2004). The Aspiration for Housing in Jeddah. Saudi Arabia. *Forum*, vol. 6, issue 1, pp. 4-9.

Al-Otaibi, Eng. M. (2009) *Real estate development practice's effect on the housing sector in (Riyadh as a case study),* MSC Thesis. KSU.

Al-Rahman, H. A. (1994). Rethinking the policy of housing finance in Saudi Arabia. *Open House International*, 19(2), pp. 13-20.

Alriyadh.com, (2010). *Land space of the most important elements that depend upon the capacity of the city of Riyadh*. http://www.alriyadh.com/2010/12/21/article587258.html [Accessed 20/10/2013.]

Alyaum newspaper, Assam, (2011). *Home ownership in the Kingdom....Is it the most difficult in the world?* http://www.alyaum.com/article/3034917#.Tq-aVjHBLzg [Accessed in 9/2015.]

Amaratunga, D., Baldry, D., Sarshar, M. and Newton, R. (2002a). Quantitative and qualitative research in the built environment: application of "mixed" research approach. Work Study Journal, 51(1), pp. 17-31.

Amaturo, E., Costagliola, S., and Ragone, G. (1987). Furnishing and status attributes: a sociological study of the living room. *Environment and Behavior*, 19, pp. 228-249.

argaam web, (2015). *Raise the electricity tariff in Saudi Arabia from the beginning of next month.* Available at http://www.argaam.com/ar/article/articledetail/id/402339. [Accessed in 20/02/2016.]

Assad, S. W. (2007). The rise of consumerism in Saudi Arabian society, *International Journal of Commerce and Management*, volume 17, pp. 73-104.

Assaf, S., Bubshit, A. and AL-Muwasheer, F. (2009). Factors affecting affordable housing cost in Saudi Arabia. *International Journal of Housing Markets and Analysis*, volume. 3, no. 4, pp. 290-307.

Augier, M. and March, J. G. (2003). The economic psychology of Herbert A. Simon: introduction to a special issue, *Journal of Economic Psychology*, vol. 24, issue 2, pp.

Ayman H. Al-Momani (2003). Housing Quality: Implications for Design and Management. *Urban Planning and Development.* ASCE. [Accessed in 2/2014.]

http://ehis.ebscohost.com/eds/pdfviewer/pdfviewer?sid=c1652fa6-0e56-4d5f-beb6-ec6b96fb794f%40sessionmgr115&vid=1&hid=116.

Sidawi, B. (2008). Incorporating Lifestyle in the Design of Affordable Housing in Saudi Arabia Kingdom. *Emirates Journal for Engineering Research*, 13 (2), 67-72.

Bank Saudi Fransi, (2011). *Monetary Watch*. Available at: http://www.alfransi.com.sa/en/section/about-us/economic-reports [Accessed 18/09/2013.]

Benros,D. and Duarte,J.P. (2009). An integrated system for providing mass customized housing. *Automation in Construction,* 18, pp. 310–320.

Bergstrom, T. (2002). Evolution of social behavior: individual and group selection. *Journal of Economic Perspectives*, vol. 16, issue 2, pp. 67-88.

Bhatti, M., Brooke, J. and Gibson, M S.. (2004). *Housing and the Environment: A New Agenda*. Coventry: Chartered Institute of Housing.

Bisset A.F. (1994). Designing a Questionnaire: Send a Personal Covering Letter. *BMJ*, Vol. 308, pp.202-203.

Blackwell, R., Miniard, P., and Engel, J. (2006). *Consumer Behaviour*. USA: Thomson/South-Western.

Blackwell, R., D'Souza, C., Taghian, M., Miniard, P. and Engel, J. (2006). *Consumer Behavior: An Asia Pacific Approach* (1st ed.). South Melbourne: Cengage Learning Australia Pty Limited.

Bloom M. and Fischer J. (1982). *Evaluating Practice: Guidelines for the Accountable Professional.* Englewood Cliffs, NJ: Prentice-Hall

Boghardt, L. P. (2013). *Egypt's Ripple Effect in the Gulf*. USA: The Washington Institute.

Bonnet, C., Gobillon, L. and Laferrère, A. (2010). The effect of widowhood on housing and location choices. *Journal of Housing Economics*, 19 (2010) pp. 94–108.

Boyd, D., Scott, G., and Gilad, . (2010). *Tweet, Tweet, Retweet: Conversational Aspects of Retweeting on Twitter*. HICSS-43. IEEE: Kauai, HI.

Bramley, G. Pawson, H. White, M. and Watkins, D. (2010). *Estimating housing need*. London: Department for Communities and Local Government. http://eprints.whiterose.ac.uk/72850/1/estimatinghousingneed.pdf. [Accessed in 11/2013.]

Brannick, T. and Coghlan, D. (2007). In defense of being "native": the case for insider academic research'. *Organizational Research Methods*, Vol.10, No.1, pp. 59–74.

Mazzo, M. H. S. N. (2015). Empirical indicators of the affected human needs of puerperal women: a methodological study. *Online Brazilian Journal of Nursing.* 14 (1):41-50. Available from: http://www.objnursing.uff.br/index.php/nursing/article/view/4602. [Accessed in 5/2015.]

Browne, G. and Hemsley, M. (2010). Consumer participation in housing: reflecting on consumer preferences. *Australasian Psychology*. doi: 10.3109/10398562.2010.499432. [Accessed in 4/2014.]

Bryman, A. (2012). *Social research methods*, 4th ed, Oxford: Oxford University Press.

Burns R. (2000). *Introduction to Research Methods*, 4th Edition, Sage Publication,

Cahoon, M. C. (1997). *Research methodology*. Edinburgh: Churchill Livingstone.

Cambridge Online Dictionary (2014). *Modelling*. http://dictionary.cambridge.org/results.asp?searchword=modelling. [Accessed 14/10/2014.]

Century21 Saudi Research and Advisory Reports, (2013). Riyadh Real Estate Market Overview (H1-2013). http://century21saudi.com/Pages/Items/Events/Details.aspx?id=271. [Accessed 24/10/2013.]

Century21 Saudi Research and Advisory Reports, (2015). Riyadh Real Estate Market Overview(2015).http://www.century21saudi.com/Public/Uploaded/MarketOverviewRiyadh2015Ar.pdf [Accessed 10/11/2015.]

Chandra, S., and Sharma, M. K. (2013). *Research Methodology*. Oxford: Alpha Science International Ltd.

Chatfield, D. Shaw, M. and Warnock, A. (2000). *The challenges of affordable housing*. Proceedings of the 2000 APA National Planning Conference.

Chen Tang, A., Hildegarde Heymann, B. and Fu-hung Hsieh, B. (2000). Alternatives to data averaging of consumer preference data. Consumer Science, Department of Food Science and Human Nutrition, University of Missouri, Columbia. Food Quality and Preference, 11, pp. 99-104.

Chisnall, P.M. (1992). *Marketing Research*, 4th Edition, McGraw-Hill.

Chung, J. and Rao, V.R. (2012). A General Consumer Preference Model for Experience Products: Application to Internet Recommendation Services. *Journal of Marketing Research*, volume 49, issue 3, pp. 289-305.

Claus Nesensohn, (2014). *An Innovative Framework for Assessing Lean Construction Maturity.*. PhD thesis. Liverpool John Moores University.

Claus Thorn Ekstrøm. (2013). Teaching 'Instant Experience' with Graphical Model Validation Techniques. Department of Biostatistics, University of Southern Denmark, Odense, Denmark.

Coit, K. (1984). Participation, social movements and social change. *Cities*, 1(6): 585-591.

Coolen, H. and Hoekstra, J. (2001) Values as Determinants of Preferences for Housing Attributes, *Journal of Housing and the Built Environment*, 16, 285–306.

Cova, B. and Cova, V. (2002). Tribal marketing: the tribalisation of society and its impact on the conduct of marketing. *European Journal of Marketing*, 36, 5/6, pp. 595–620.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative and mixed methods approaches*, 3rd ed, London: Sage.

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches*, 3rd ed, London: Sage.

Creswell, J. W., and Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory into Practice*, 39(3), pp. 124-130.

Creswell, J. W. and Plano Clark, V. L. (2011). *Designing and Conducting Mixed Methods Research*, California: Sage Publications.

Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*, London: Sage.

Cupchik, G. C., Ritterfeld, U. and Levin, J. (2003). Incidental learning of features from interior living spaces. *Journal of Environmental Psychology*, 23(2), 189-197.

Danko, S., Eshelman, P., and Hedge, A. (1990). A taxonomy of health, safety, and welfare implications of interior design decisions. *Journal of Interior Design Education and Research*, 16, pp. 19-30.

Dar Al Tamleek, (2014). http://www.daraltamleek.com/english/home_ownership_in_ksa.aspx. . [Accessed 17/02/2014.]

David Gary, (2013). Doing research in the real world. Published by SEGA.

Denef, S., Kaptein, N., and Bayerl, P. S. (2011). *ICT trends in European policing*. The COMPOSITE Project. Sankt Augustin: Fraunhofer Institute for Applied Information Technology

Denzin, N. K. and Lincoln, Y. S. (1998). *Strategies of qualitative inquiry*, London: Sage.

Department for Communities and Local Government (2010). E*nglish Housing Report 2008–09*. London: Department for Communities and Local Government. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6695/1750765.pdf [Accessed in 1/2015.]

Detterman, D. K. (1995). *Research Methodology*. Norwood, N.J: Ablex.

Di Clemente, D. F. and Hantula, D. A. (2003). Applied behavioural economics and consumer choice, *Journal of Economic Psychology*, volume 24, issue 5, pp. 589-602.

Dökmeci, V. and Berköz, L. (2000) Residential-location preferences according to demographic characteristics in Istanbul, *Landscape and Urban Planning*, volume 48, pp. 45-55.

Dokmeci, V., Berkoz, L., Levent, H., Yurekli, H., and Cagdas, G. (1996). Residential preferences in Istanbul. *Habitat International*, volume 20, issue 2, pp. 241-251.

Donald J. Hempel and Lewis R. Tucker Jr. (1979). Citizen Preferences for Housing as Community Social Indicators. Environment and Behaviour. SAGE.

Donggen Wang, Si-Ming Li. (2004) Housing preferences in a transitional housing system: the case of Beijing, China. Hong Kong Baptist University: Department of Geography, Hong Kong Baptist University, Kowloon Tong, Hong Kong.

Dr. Anatoliy Gruzd. (2011). Imagining Twitter as an Imagined Community. Dalhousie University, School of Information Management, Faculty of Management, 1459 Oxford St, Halifax, NS B3H 4R2, Canada.

Dröes, M. I. and Hassink, W. H. J. (2011). House price risk and the hedging benefits of home ownership Amsterdam, The Netherlands. *Journal of Housing Economics*, volume 22, pp. 92-99.

Dubnick, S. R. (2012). *A Bayesian approach to analysing replicated preference tests*. Kansas, USA: Department of Statistics, Kansas State University, Dickens Hall, Manhattan.

Easterby-Smith, M., Thorpe, R. and Jackson, P. (2008). *Management Research*, 4th ed, London: Sage.

Eben, M. (2011). Planning and designing for defence, security and safety in Saudi Arabian residential environments. *Journal of Architectural and Planning Research*. http://ehis.ebscohost.com/eds/pdfviewer/pdfviewer?sid=cebeedc6-060b-4a83-ade7-94dbd51920bb%40sessionmgr15&vid=1&hid=17. [Accessed 17/02/2014.]

Fattah, Z. (2013). *Saudi Arabia's Affordable Housing Shortage*. Business Source Complete. businessWeek.com. http://ehis.ebscohost.com/eds/pdfviewer/pdfviewer?sid=baeefb66-d932-45c0-bb2b-2c8775c5fae6%40sessionmgr11&vid=1&hid=16 [Accessed 29/03/2013.]

Fern, E. F. (2001). *Advanced focus group research*. London: Sage.

Field, Andy. (2009). *Discovering Statistics Using SPSS (Introducing Statistical Method*) (3rd Ed.). London: SAGE Publications.

Fontana, A. and Frey, J. H. (1994). The art of science. In: Denzin, N. and Lincoln, Y. (eds.) *Handbook of qualitative research*. London: Sage.

Fontenla, M and Gonzalez, F. (2009). Housing demand in Mexico. *Journal of Housing Economics*, volume 8, issue 1, pp. 1-12.

Foxall, G. R. (2003). The behaviour analysis of consumer choice: an introduction to the special issue, *Journal of Economic Psychology*, volume 24, pp. 581-588.

Frey, J. H. and A. Fontana. (1993). The group interview in social research. In: Morgan, D. L. (ed.) *Successful focus group: Advancing the state of art*. London: Sage.

Garba, S. B. (2004). *Managing urban growth and development in the Riyadh metropolitan area, Saudi Arabia*. College of Environmental Design, King Fahd University of Petroleum and Minerals. http://www.sciencedirect.com/science/article/pii/S0197397504000232. [Accessed 21/09/2013.]

Garland, R. (1991). The Mid-Point on a Rating Scale: Is it Desirable? *Marketing Bulletin*, 1991, 2, 66-70, Research Note 3. Page 1 of 4 http://marketing-bulletin.massey.ac.nz. [Accessed in 2/2015.]

Gibler, K. M., and Nelson, S. L. (2003). Consumer behaviour applications to real estate education. *Journal of Real Estate Practice and Education*, volume 6, issue 1, pp. 62-83.

Gibler, K.M. and Taltavull, P. (2010). Using preferences for international retiree housing market segmentation. Journal of Property Research volume 27, no. 3, pp. 221–237.

Global Web Index. (2015). *Digital, Social and Mobile in 2015.* http://www.slideshare.net/wearesocialsg/digital-social-mobile-in-2015 . [Accessed in 9/2015.]

Goulding, C. (2002). *Grounded Theory: A Practical Guide for Management, Business and Market Researchers*. London: Sage.

Graves, P., Murdoch, J. C., Thayer, M. A., and Waldman, D. (1988). The robustness of hedonic price estimation: urban air quality. *Land Economics*, volume 64, issue 3, pp. 220-233.

GreenBook Research Industry Trends Report. (2012). *GreenBook Research Industry Trends Report* (12th edn). Available online at: http://www.greenbookblog.org/2013/03/12/the-12thedition-of-the-greenbook-research-industry-trends-grit-report-is-now-available/. [Accessed in 9/2015.]

Grix, J. (2010). *The Foundations of Research*, 2nd ed, Basingstoke: Palgrave Macmillan.

Guerin, B. (2003). Putting a radical socialness into consumer behaviour analysis, *Journal of Economic Psychology*, volume 24, pp. 697-718.

Han, X. (2008). Housing demand in Shanghai: A discrete choice approach. *China Economic Review*, 21, pp. 355-376.

Haytham Alhubashi, (2012). *Housing sector in Saudi Arabia*. Máster Universitario en Gestión y Valoración Urbana. Departamento de Construcciones Arquitectónicas I, CAI. Universidad Politécnica de Cataluña, UPC. Barcelona – España.

Hofman, E., Halman, J. I. M. and Ion, R. A. (2006). Variation in Housing Design: Identifying Customer Preferences, *Housing Studies*, 21:6, 929-943, DOI:10.1080/02673030600917842. http://dx.doi.org/10.1080/02673030600917842. [Accessed 20/09/2013.]

Holden, M.T. and Lynch, P. (2004). Choosing the Appropriate Methodology: Understanding Research Philosophy (RIKON Group). *The Marketing Review* 4, pp. 397-409.

Hoyer, W. D., and Macinnis, D. J. (2010). *Consumer Behavior* (5th ed.). USA: South-Western Cengage Learning.

Hsieh, G. and Counts, S. (2009). MIMIR: A market-based real-time question and answer service. *CHI* 2009, pp. 769-778.

Huberman, B., Romero, D.M. and Wu, OF. (2009). Social Networks that Matter: Twitter under the microscope. *First Monday*, 14(1-5).

Hullgren, M. and Söderberg (2012). The relationship between consumer characteristics and mortgage preferences. A case study from Sweden. www.emeraldinsight.com/1753-8270.htm. [Accessed 10/02/2014.]

International Housing Affordability Survey. (2015). *11th Annual. Demographic International. Housing Affordability Survey: 2015 Ratings for Metropolitan Markets*. http://www.demographia.com/dhi.pdf. [Accessed in 7/2015.]

International Monetary Fund (2013) *Saudi Arabia: Selected Issues*. Washington: IMF.http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&ved=0CDAQFjAA&url=http%3A%2F%2Fwww.imf.org%2Fexternal%2Fpubs%2Fft%2Fscr%2F2013%2Fcr13230.pdf&ei=AlREUoiUJaSP0AXFvYCYCQ&usg=AFQjCNGMWpcWfnGSbwQjk6Py_iHJulAHoQ&sig2=XGDXsmJK1guXLMrXJW0pYg&bvm=bv.53217764,d.d2k. [Accessed 26/09/2013.]

International Monetary Fund report, (2014). *Saudi Arabia.* http://www.imf.org/external/pubs/ft/scr/2014/cr14292.pdf. [Accessed in 3/2015.]

Jakobsson, U. (2004). Statistical presentation and analysis of ordinal data in nursing research. *Scandinavian Journal of Caring Sciences*, 18, 437-440.

James Dean Brown. (2011). Likert items and scales of measurement. Statistics Corner. Questions and answers about language testing statistics. SHIKEN: JALT *Testing and Evaluation SIG Newsletter*. March 2011. 15(1) 10-14.

Jamieson, L. M. 2001. *Research design*. Bloomington, IN: Indiana University, Instructional

Jarabeen, Y. (2005). C*ulture and housing preferences in a developing city: environment and behaviour*. Sage Publications.

Jason Priem and Kaitlin Light. (2010). *How and why scholars cite on Twitter*. Costello School of Information and Library Science, University of North Carolina at Chapel Hill CB .Manning Hall, Chapel Hill, NC.

Javier A. Barrios García. (2008). Housing demand in Spain according to dwelling type: Micro econometric evidence. Department of Applied Economics, University of La Laguna, Spain.

Jazeera newspaper, (2014). *Enormous economic justification for land tax*. http://alphabeta.argaam.com/article/detail/94391/%D9%85%D8%A8%D8%B1%D8%B1%D8%A7%D8%AA-%D8%A7%D9%82%D8%AA%D8%B5%D8%A7%D8%AF%D9%8A%D8%A9-%D9%87%D8%A7%D8%A6%D9%84%D8%A9-%D9%84%D8%B1%D8%B3%D9%88%D9%85-%D8%A7%D9%84%D8%A3%D8%B1%D8%A7%D8%B6%D9%8A. [Accessed in 10/2015.]

Jeddah Economic Forum, (2013). http://www.jef.org.sa/ [Accessed 25/05/2013.]

Jha, N. K. (2008). *Research Methodology*. Chandigarh: Abhishek Publications.

Jidong Zhang, (1987). *Housing Policy and Housing Satisfaction in the People's Republic of China: A Behavioural Approach Applied in the City of Xian*. PhD thesis. Wilfrid Laurier University.

Johnson, R. B., Meeker, K. M., Loomis, E. J., and Onwuegbuzie, A. J. (2000). *Development of the philosophical and methodological beliefs inventory*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Jones Lang LaSalle, (2008). *The Saudi Arabia real estate market, The Gulf's powerhouse*. Global Foresight Series. Available from http: //www.joneslanglasalle-mena.com/en-GB/news/2008/The_Gulfs_Powerhouse.htm. [Accessed 20/09/2013.]

Jones Lang LaSalle report, (2015). *The KSA Real Estate Market: 2015 A Year in Review*. Available from. http://www.jll-mena.com/mena/ar-ar/Research/Riyadh%20Real%20Estate%20Market%20Overview%20-%20Ar%20-%20Q3%202015.pdf?2ff7c480-51e6-4a1f-a061-5328379e5881. [Accessed 20/02/2016.]

Jones, C. and Watkins, C. (2009). *Housing Market and Planning Policy* (1st ed.). United Kingdom: John Wiley and Sons Ltd.

Joost C. F. de Winter and Dimitra Dodou. (2012). *Five-Point Likert Items: t test versus Mann-Whitney-Wilcoxon*. Department of Bio Mechanical Engineering, Delft University of Technology. http://pareonline.net/getvn.asp?v=15&n=11. [Accessed 09/2014.]

Kadiri, K.O. (2005). Mass Housing through Earth Construction Technology in Nigeria. *Pakistan Journal of Social Sciences*, 3(5), 755-760.

Kauko, T. (2006). Expressions of Housing Consumer Preferences: Proposition for a Research Agenda. *Housing, Theory and Society*, volume 23, no. 2, pp. 92–108.

Kerlinger, F. (1986). *Foundations of Behavioural Research*, 3rd edition, Holt, Rinehart and Winston, Inc.

Kervin, L. K., Vialle, W. J., Herrington, J. A. and Okely, A. D. (2006). *Research for Educators*. South Melbourne, VIC: Thomson/Social Science Press.

Ketchum. (2012). *The Principles of PR Measurement*. Ketchum Global Research and Analytics. http://www.ketchum.com. [Accessed in 4/2014.]

Khan, J. and Manderson, L. (1992). Focus group in tropical diseases research. *Health Policy and Planning*, volume 7, issue 1, pp. 56-66.

Knodel, J. (1993). The design and analysis of focus group studies: A practical approach. In: Morgan, D. L. (ed.) *Successful focus group: Advancing the state of the art*. London: Sage.

Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Delhi: New Age International (P) Ltd.

Kothari, C.R.. (2012). Research Methodology: An introduction. In *Research Methodology: Methods and Techniques*. p. 418.

Kotler, P. and Armstrong, G. (2009). *Principles of Marketing* (13th ed.). New Jersey: Prentice Hall.

Kotler, P. and Keller, K. L.. (2009). *Marketing Management* (5th ed.). New Jersey: Pearson Education, Inc.

Krueger, A.O. (1993). *Economic Policies at Cross-Purposes: The United States and the Developing Countries*, Washington, DC: The Brookings Institution.

Krueger, R. (1988). *Focus groups: A practical guide for applied research*. Newberry Park, CA: Sage Publications.

Krueger, R. (2007). *Problems, challenges and headaches with focus group interviewing and strategies for responding*. Workshop presented at the American Evaluation Association annual conference. Baltimore, Maryland.

Krueger, R. A. (1993). Quality control in focus group research. In: Morgan, D. L. (ed.) *Successful focus group: Advancing the state of the art*. London: Sage.

Krueger, R. A. (1997). *Developing questions for focus group*. Thousand Oaks, CA: Sage.

Krueger, R., and Casey, M. (2009). *Focus groups: A practical guide for applied research* (4th ed.). Thousand Oaks, CA: Sage Publications.

Kubicek, A., Jopp, F., Breckling, B., Lange, C. and Reuter, H. (2015). Context-oriented model validation of individual-based models in ecology: A hierarchically structured approach to validate qualitative, compositional and quantitative characteristics. *Ecological Complexity*, 22, pp. 178-191.

Kumar, R. (2005). *Research methodology: A step-by-step guide for beginners*. London: SAGE.

Kvale, S. (2007). *Doing interview*. London: Sage.

LaCoursiere, S. (2003). Research Methodology for the Internet. *Advances in Nursing Science*, 26(4), p.257-273.

Land Value Taxation Campaign, (2010) *Winston Churchill said it all better than we* can. http://www.landvaluetax.org/current-affairs-comment/winston-churchill-said-it-all-better-then-we-can.html. [Accessed in 10/2015.]

Lei Wen and Qian Hao. (2012). Consumer investment preferences and the Chinese, real estate market. www.emeraldinsight.com/1753-8270.htm. [Accessed in 10/2014.]

Levitas, R., Pantazis, C., Fahmy, E., Gordon, D., Lloyd, E. and Patsios, D. (2007). *The Multi-dimensional analysis of social exclusion.* Report funded by the Department for Communities and Local Government (DCLG), London: DCLG.

Lincoln, Y. S. and Guba, E. G. (1985). *Naturalistic Inquiry*. London: Sage.

Linville, D., Lambert-Shute, J., Fruhauf, C. A., and Piercy, F. P. (2003). Using participatory focus groups of graduate students to improve academic departments: A case example. *The Qualitative Report*, 8(2), 210-223. London, pp. 556-594.

Maclennan, D. and Whitehead, C. (1996). Editorial: housing economics – an evolving agenda, *Housing Studies*, volume 11, pp. 341-344.

Mansour Alkhyeli and Ali Mansour. (2015). Using Social Media for Supporting Decision-Making in Managing. Public Relations: The Case of Abu Dhabi Police. In (eds) Mesquita, A. and Peres, P. *Proceedings of the 2nd European Conference on Social Media.* Reading, UK: Academic Conferences and Publishing Limited..

Margrethe Mondahl and Liana Razmerita. (2014). Social Media, Collaboration and Social Learning – a Case study of Foreign Language Learning. *The Electronic Journal of e-Learning*, 12(4), pp. 339-352.

Mashary A. Al-Naim, 2008. Identity in Transitional Context: Open-Ended Local Architecture in Saudi Arabia. *International Journal of Architectural Research*, 2(2), pp. 125-146. http://www.nbhf.org.sa/pdf/br_5_OpenEndedLocalArchitecture.pdf. [Accessed in 5/2014.]

Me Khan and Lenore Manderson. (1992). *Focus groups in tropical diseases research*. Oxford: Oxford University Press.

Meredith Ringel Morris, Jaime Teevan and Katrina Panovich. (2010). What Do People Ask Their Social Networks, and Why? A Survey Study of Status Message Q and A Behavior. Using Your Social Network. *CHI '10: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems.* April 10–15, 2010, Atlanta, GA, USA. Methods and Techniques. p. 418.

Michael Boyer O'Leary, Mark Mortensen and Anita Williams Woolley. (2011). Multiple Team Membership: a Theoretical Model of its Effects on Productivity and Learning for Individuals and Teams. *Academy of Management Review*, 36(3), pp. 461-478

Miles, M. B. and Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. London: Sage.

Ministry of Finance, (2015). https://www.mof.gov.sa/Arabic/Pages/Home.aspx. [Accessed in 10/2015.]

Ministry of Housing in Saudi Arabia, (2013). http://www.housing.gov.sa/. [Accessed 25/05/2013.]

Mok, D. (2002). Sharing the risk of home ownership: A portfolio approach. *Urban Studies*, 39(7), pp. 1095-1112. http://usj.sagepub.com/content/39/7/1095.full.pdf+html. [Accessed in 3/2014.]

MOMRA (2015) *Home page*. Available at: https://www.momra.gov.sa/. [Accessed in 3/2014.]

Morgan D.L. (1997, 2nd Edition) Focus groups as qualitative research. London.

Sage.Murphy, R. O. and Ackermann, K. A. (2015). A review of measurement methods for social preferences, *Personality and Social Psychology Review*. Published online before print September 23, 2013, doi: 10.1177/1088868313501745 Pers Soc Psychol Rev February 2014 vol. 18 no. 1 13-41

Nancy K. Franz. (2011). The Unfocused Focus Group: Benefit or Bane? *The Qualitative Report*, 16(5), pp. 1380-1388. http://www.nova.edu/ssss/QR/QR16-5/franz.pdf. [Accessed 2/2015.]

Neal, C., and Quester, P. (2007). *Consumer Behaviour* (5th ed.). Australia: McGraw-Hill.

Nelson, R. R. and Winter, S. G. (2002). Evolutionary theorizing in economics, *Journal of Economic Perspectives*, volume 16, issue 2, pp. 23-46.

Opoku, R. A. and Abdul-Muhmin, A. G. (2013). Realizing the dream of owning a home, A preliminary study of house purchase financing options for low-income Saudis, *International Journal of Housing Markets and Analysis*.

Opoku, R.A. and Abdul-Muhmin, A. G. (2010). Housing preferences and attribute importance among low-income consumers in Saudi Arabia. *Habitat International*, volume 34, 219–227.

Oxford Business Group, (2014). *Saudi housing market under pressure*, http://www.oxfordbusinessgroup.com/news/saudi-housing-market-under-pressure. [Accessed in 10/2015.]

Ozaki, R. (2002). *Housing as a Rejection of Culture: Privatised Living and Privacy in England and Japan*. Sussex, UK: Science and Technology Policy Research Unit, University of Sussex, Brighton, UK.

Pak, A., and Paroubek, P. (2010). Twitter as a Corpus for Sentiment Analysis and Opinion Mining. In *Proceedings of LREC*. LREC, May 17-23, Valletta, Malta.

Pallant, J. (2011). *SPSS Survival Manual: A step by step guide to data analysis using SPSS* (4th ed.). England: McGraw-Hill Education.

Parasumraman, A. (1991). *Marketing Research*, Addison-Wesley, Reading (Mass).

Pascal, M (2011). *Development, Planning and Urban Unrest in Saudi Arabia*. New York, USA: New York University. Available at

http://ehis.ebscohost.com/eds/pdfviewer/pdfviewer?sid=0c985cb4-4638-49a8-bbe5-4a78cd3be339%40sessionmgr14&vid=2&hid=17. [Accessed 2/2014.]

Pasha, H. A., and Butt, M. S. (1996). Demand for housing attributes in developing countries: a study of Pakistan. *Urban Studies*, 33(2), 1141–1154. doi: 10.1080/00420989650011555.

Piercy, F., Franz, N. Donaldson, J., and Richard, R. (2011). Consistency and change in participatory action research: Reflections on a focus group study about how farmers learn. *The Qualitative Report*, 16(3), 820-829.

Priemus, H. (1984). *Housing Allowances in the Netherlands. Product of a Conservative or a Progressive Ideology?* Delft: Delft University Press.

Pryke, S. and Smyth, H. (2006). *The management of complex projects. A relationship approach*. Blackwell. Oxford.

Quester, P. G. (2014). *Implications for Marketing Strategy* (6th ed.). Sydney: McGraw-Hill Australia Pty Limited.

Quester, Pascale, Pettigrew, Simone, and Hawkins, Del I. (2011). *Consumer Behavior: Implications for Marketing Strategy*. Australia: McGraw-Hill.

Raj, D. (1972). *The Design of Sample Surveys*, New York, USA: McGraw Hill.

Real Estate Development Fund, REDF. (2013). http://www.redf.gov.sa/Pages/Facts.aspx [Accessed 20/09/2013.]

Reed, R. (2007). Identifying the drivers behind housing preferences of first-time owners. *Property Management*, 25(3), pp. 225-241.

The University of Melbourne, Melbourne, Australia, and Anthony Mills. RMIT University, Melbourne, Australia.

Reich, Y., et al. (1996). Varieties and issues of participation and design. *Design Studies*, 17(2): 165-180.

Richard N. Landers and Rachel C. Callan. (2014). Validation of the Beneficial and Harmful Work-Related Social Media Behavioural Taxonomies: Development of the Work-Related Social Media Questionnaire. Old Dominion University.

Robertson, D. (2008). *Looking into housing. A practical guide to housing research*. Oxon: Chartered Institute of Housing.

Robertson, J. (2008). *Housing policy issues in a rich country with high population growth: the case of Riyadh, Saudi Arabia*. Blackwell Publishing, Asia Pty Ltd.

Rolland, S. E. and Parmentier, G. (2013). The benefit of social media. Bulletin board focus groups as a tool for co-creation. *International Journal of Market Research* Vol. 55 Issue 6, pp. 791-808.

Roscoe, J. T. (1975). *Fundamental research statistics for the behavioural sciences*. New York, NY. Holt, Rinehart and Winston.

Rotimi, A. I. and Olayinka, A., A. (2014). Intra-city polarization, residential type and attribute importance: A discrete choice study of Lagos. *Habitat International*, volume 42, pp. 11-20.

Saari, A., and Tanskanen, H. (2011). Quality level assessment model for senior housing. *Property Management*, 29(1), 34-49.

Samba Financial Group (2010). *Saudi Arabia's Housing Market: Structural Issues, Financing, and Potential*, SAMBA Report Series, December, available at: www.samba.com.sa/GblDocs/saudi_arabia_housing_market_eng.pdf . [Accessed 2/2014.]

Sanchez, T.W. and Hyra, D (2013). *Housing Policy Debate*. London: Taylor and Francis Group. http://www.tandfonline.com/doi/pdf/10.1080/10511482.2012.697912 [Accessed 4/2014.]

Saudi Geological Survey. (2013). http://www.sgs.org.sa/English/Pages/default.aspx. [Accessed 25/05/2013.]

Saunders, M., Lewis, P. and Thornhill, A. (2009). *Research methods for business students*,5th ed, Harlow: FT Prentice Hall.

Saunders, M., Lewis, P. and Thornhill, A. (2012). *Research methods for business students*, 6th ed, Harlow: Pearson.

Scruggs, T. E., and Mastropieri, M. A. (2006). *Applications of research methodology*. Amsterdam: Elsevier JAI.

Sekaran, U., and Bougie, R. (2009). *Research Methods for Business: A Skill Building Approach* 5th ed. United Kingdom: John Wiley and Sons Ltd.

Sim, J. (1998). Collecting and analysing qualitative data: Issues raised by the focus group, *Journal of Advanced Nursing*, 28(2), pp. 345-352.

Sirgy, M. J., Grzeskowiak, S. and Chenting, S. (2005). Explaining Housing Preference and Choice: The Role of Self-congruity and Functional Congruity, *Journal of Housing and Built Environment*, volume 20, pp. 329-347.

Smith, S. L. (2011). Incorporating Fair Housing into Affordable Housing Policy and Programs. *Journal of Affordable Housing and Community Development Law*.

Smithson, J. (2008). Focus Group. In: Alasuutari, P., Bickman, L. and Brannen, J. (eds.) *The Sage Handbook of Social Research Methods*. London: Sage: 356-371.

Soklaridis, S. (2009). The Process of Conducting Qualitative Grounded Theory Research for a Doctoral Thesis: Experiences and Reflections. *The Qualitative Report*, 14(4), 718-733. Retrieved from http://nsuworks.nova.edu/tqr/vol14/iss4/6. [Accessed in 8/2014.]

Stahel, W. (1998). From Products to Services: Selling Performance Instead of Goods, *IPTS Report*, Vol. 27.

Stefan Hrastinski and Naghmeh M. Aghaee. (2011). How are campus students using social media to support their studies? An explorative interview study. *Education and Information Technologies*, 17(4), pp. 451-464.

Stevens, S. (1951). *Handbook of Experimental Psychology*, New York, NY: Wiley.

Struyk, R. J. (2005). *Housing Policy Issues in a Rich Country With High Population Growth: The Case of Riyadh, Saudi Arabia*. Washington, DC, USA: The Urban Institute, Washington, DC, USA http://onlinelibrary.wiley.com/doi/10.1111/j.1467-940X.2005.00099.x/pdf. [Accessed 4/2014.]

Suddaby, R. (2006). From the editors: What grounded theory is not. *Academy of Management Journal*, 49(4), pp. 633-642.

Suheir M.S. Ammar, Kausar Hj Ali and Nor'Aini Yusof. (2013). The Effect of Participation in Design and Implementation Works on User' Satisfaction in Multi-Storey Housing Projects in Gaza, *World Applied Sciences Journal*, 22(8), pp. 1050-1058.

Teck-Hong, T. (2012). Meeting first-time buyers' housing needs and preferences in greater Kuala Lumpur. *Cities*, volume 29, pp. 389–396.

Telmesani, A. (1997). Impact of housing Construction Subsidies on Housing Consumption and Residential Location in Riyadh, Saudi Arabia. *Open House International*.

The social clinic. (2013). The State of Social Media in Saudi Arabia 2013. http://www.thesocialclinic.com/the-state-of-social-media-in-saudi-arabia-2013/. [Accessed in 8/2015.]

Van den Born, A., Van Witteloostuijn, A., Barlage, M., Sapulete, S., van den Oord, A., Vallet, N., andPolos, L. (2013). Policing opportunities and threats in Europe. *Journal of Organizational Change Management*, 26(5), 4-4.

Van Maanen, J., Sørensen, J. B. and Mitchell, T. R. (2007). The interplay between theories and method. *Academy of Management Review* V.32 (4), pp.1145-1154.

Vicente, P. and Reis, E. (2012). Coverage error in internet surveys: can fixed phones fix it? *International Journal of Market Research*, 54, 3, pp. 323–345.

Wang, D. and Li, S. (2006). Socio-economic differentials and stated housing preferences in Guangzhou, China. *Habitat International*, volume 30, pp. 305-326.

Wang, D. and Li, S.-M. (2004). Housing preferences in a transitional housing system: the case of Beijing, China. *Environment and Planning*, volume 36, pp. 69-87.

WCG (2010).*The 4 A's: The Engagement Span*. WCG. http://blog.wcgworld.com. [Accessed in 3/2015.]

Webb, K. (2008). *Consumer behaviour* (2nd ed.). Australia: McGraw-Hill.

Wen, H. and Lam, K. (2008). *The Making of Flexible Design Process for Taiwanese Housing Developments*. Retrieved from http://www.iasdr2009.org. [Accessed in 4/2015.]

Whitehead, C.M. E. (1999). Urban housing markets: theory and policy. In: Mills, E. S. and Cheshire, P. (Eds.) *Handbook of regional and urban economics*. Elsevier.

Whitehead, M. P. and Kleinman, C. M. E. (1992). A medium term forecast of housing output. Cambridge: University of Cambridge.

Whittemore, R., et al. (2001). Validity in qualitative research. *Qualitative Health Research*, 11(4), pp. 522-537.

Whyte, W. F. (1982). Interviewing in field research. In: R. G. Burgess (Ed.), *Field research: A sourcebook and field manual* (pp. 111–122). London: George Allen and Unwin.

Wilkinson, S. (1998). Focus group methodology: A review. *International Journal of Social Research Methodology*, 1(3), pp. 182-203.

Yeich, S., Mowbray, C. T., Bybee, D. and Cohen, E. (1994). The Case for a "Supported Housing" Approach: A Study of Consumer Housing and Support Preferences. *Psychosocial Rehabilitation Journal,* 18)2), pp. 75-86.

Zabel, J. E., and Kiel, K. A. (2000). Estimating the demand for air quality in four U.S. cities. *Land Economics*, volume 76, issue 2, pp. 174-194.

Zinas, B. Z. and Jusan, M. B. M. (2009). Housing Choice and Preference: Theory and Measurement. *Procedia - Social and Behavioral Sciences*, 49, pp. 282-292.

Appendices

Appendix 1: The Consumers' and Professionals' Questionnaires

The consumers' questionnaire

An Investigation into the Housing problem in Saudi Arabia; new approach protocols and solutions.

Dear Sir/Madam,

You are being invited to take part in a research study. Before you decide it is important that you understand why the research is being done and what it involves. Please take time to read the following information. Ask us if there is anything that is not clear or if you would like more information. Take time to decide if you want to take part or not.

The research will investigate and identify the major problems and challenges in the housing sector in Saudi Arabia. The aim of the research is to develop and validate a model that reflects housing preferences and choices in society, based upon the behavioural dynamism of people and within the framework of preferences and choices for housing attributes. You are asked to consider various preferences of the housing in Saudi Arabia through four perspectives:

- Housing problem.
- Financial preferences.
- Location preferences.
- Design preferences (Internal & External).

It is up to you to decide whether or not to take part. If you do, you need to click continue. You are still free to withdraw at any time and without giving a reason. A decision to withdraw will not affect your rights. You will need to fill the Questionnaire, which will take approximately 10 to 15 minutes to complete the survey.

All data provided will be treated in confidentiality. You will remain anonymous throughout the data analysis and the results and there are no risks to be part of this study, your participation is benefit for this study.

Thanks for your support.

Kind regards,

Mohammad A Algrnas
LJMU, School of build environment, Best Institution, Henry Cotton Building
15-21 Webster St L3 2ET
Email. M.A.Algrnas@2013.ljmu.ac.uk.

Dr. Emma Mulliner
Director of Study
Email. E.K.Mulliner@ljmu.ac.uk

Gender:	Male	Female			
Age	Less than 20	21-30	31-40	41-50	above 50
The social status:	Single	Married	Divorce		
How many person Dependent with you?	0	1	2	3	4	5 or more
The education Level:	High school	Diploma	Bachelor	Post-Graduation	
In which Region do you live? Select an answer					
What is your monthly income?	3000-7000 SR	7500-12500 SR	13000-20000 SR	Above 21000 SR	
Which kind of property do you live in now?	Flat	Semi-detached house	Detached house		
Do you migrate from small city to a large one?	Yes	No			
Do you own or rent the place where you live?	Owning your home	Renting your home	Live at the family home		

A- Housing problem in Saudi:

Please indicate (by marking the appropriate box) the extent to which you agree or disagree with each of the following statements about the housing problem in Saudi.	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
The increase in prices in the housing market affects the Saudi citizen financially.					
Purchasing or building a property with the increased prices is a financial risk.					
Citizens do not like to take mortgages, they rather pay in cash.					
Real estate mortgages could be the solution for those who do not have the cash to purchase homes.					
The high interest applied in mortgages is the reason for the lack of home mortgages.					
The mortgages offered by the government and banks meet citizens' needs and preferences.					

The present house values are compatible with their quality.					
The increase of land price one of the reasons for the housing problem.					
The construction cost is one of the reasons for the housing problem					
Most of the homes developed in Saudi are developed by individuals.					
Building your own home is better than buying it from a real estate developer.					
The quality of housing development in Saudi has been affected negatively because it is easy to establish a substantial estate and construction office.					
The housing that is delivered to the real estate market suites citizen Preferences.					
The government regulation of design and build, impact the developer of homes to reach the consumer preferences.					
People still make modifications in homes after moving in.					
There is currently a tendency to go back to the extended family style of living, sharing the same house.					
The work the ministry of housing has completed from 2011 made a significant impact on the housing market.					
The political situation in Saudi is stable and encouraging for house purchase.					

B- Location preferences:

Please indicate how important each attribute is to the housing consumer on the scale of 1 (being very important) to 5 (not important). **1 ----------2----------3----------4----------5**					
Closeness to relatives and family.					
Quality of the neighbourhood					
The safety of the neighbourhood					
Cleanliness of the neighbourhood					
Closeness to school					

Neighbourhood service such as (shopping centre, play area, library)					
Near to public transport					
The accessibility and the quality of the roads					
The width of the street					
The name of the district and the level of people who live there.					
Design of the district					
Air quality and how far the location is from industrial area and noise.					
Knowing the soil and the land is not prone to flooding					

C- Exterior design preferences:

Please indicate how important each attribute is to the housing consumer on the scale of 1 (being very important) to 5 (not important). **1 ----------2----------3----------4----------5**					
Aesthetics and Building design					
Type and quality of finishing such as (painting, flooring, etc.)					
The size of the garden and courtyard					
Large lots size					
Bigger building size					
Bigger home even if far from the city.					
Wide parking lots					
Number of stories in the building					

D- Interior design preferences:

Please indicate how important each attribute is to the housing consumer on the scale of 1 (being very important) to 5 (not important). **1 ----------2----------3----------4----------5**					
Functionality and spaciousness of the design					
Modern design (open kitchen, open space, etc.)					
Privacy (e.g. from neighbours, visitor, …)					
Number of bedrooms					
Number of bathrooms					
The presence of a private space for the family					
Larger space for the visitors room					
The presence of a storage room					
The presence of facility rooms					
The size of the windows					
Natural light					
Choose one of the answers					
What average house size is generally sufficient for the Saudi family?	150-200 m2	250-300 m2	350-450 m2	500-700 m2	Above 700 m2
What is the minimum size of bedrooms required?	3*3 m2	3*4 m2	4*4 m2	4*5 m2	5*5 m2
What number of rooms is adequate for the Saudi family?	1	2	3	4	5
What kitchen size is adequate for the Saudi family?	3*3 m2	3*4 m2	4*4 m2	4*5 m2	5*5 m2
What is the minimum size of living room space for the Saudi family?	3*3 m2	3*4 m2	4*4 m2	4*5 m2	5*5 m2

E- Specification details preferences:

Please choose one answer for each attribute ranging from 1 (being very important) to 5 (not important). **1 ----------2----------3----------4----------5**					
Quality of the building					
Age of the building					
Environmentally friendly building					
The materials used					
Insulation					
Cold and heating system					

The professionals' questionnaire

An Investigation into the Housing problem in Saudi Arabia; new approach protocols and solutions.

Dear Sir/Madam,

As a professional about in real estate development and construction, you are invited to take part in a research study. It is important that you understand the purposes of the research and its involvement before you make your decision.
Please take time to read the following information. If there is something unclear or you need more information, please do not hesitate to ask us. Take your time to decide whether or not you want to take part.
This research intends to investigate and identify the major problems and challenges in the housing sector in Saudi Arabia. The aim of this research is to develop and validate a model that reflects housing preferences and choices in society based upon the behavioural dynamism of people and within the framework of preferences and choices for housing attributes. You are asked to consider how the attributes of housing preferences affect the buyers in Saudi Arabia through four perspectives:

-Housing problem.
-Financial preferences.
-Location preferences.
-Design preferences (Internal & External).

It is up to you to decide whether or not to take part. If you do, you need to click continue. You are still free to withdraw at any time and without giving a reason. A decision to withdraw will not affect your rights.
The questionnaire will take approximately 10 to 15 minutes to complete.

All data provided will be treated in confidentiality. You will remain anonymous throughout the data analysis and the results. Taking part in this study has no risk, and your participation will be very beneficial for the research to creating a model for housing consumer preferences. The aims of this survey to know the consumer preferences in Saudi Arabia.

This study has received ethical approval from LJMU Research Ethics Committee (Ref:14/BUE/001 in 28/01/2014).

Thank you for your cooperation.

Kind regards,

Mohammad A Algrnas
LJMU, School of the Built Environment, Best Institution, Henry Cotton Building
15-21 Webster St L3 2ET
M.A.Algrnas@2013.ljmu.ac.uk.
Dr. Emma Mulliner
Director of Study
Room 3.04 Cherie Booth Building, Byrom Street, Liverpool, L3 3AF
E.K.Mulliner@ljmu.ac.uk

In which Region do you live? Select an answer					
What is your education Level:	High school	Diploma	Bachelor	Post-Graduation	
Where do work?	Real estate office	Real estate development company	Construction and design	Government	Other…

To what extent do you feel the current provision of housing in the market meets consumer preferences?	1Bad----2----3----4----5----6----7----8----9----10Good
As an expert in real estate, which of these preferences affects buyers more?	Price---location---internal design---external design

F- Housing problem in Saudi:

Please indicate (by marking the appropriate box) the extent to which you agree or disagree with each of the following statements about the housing problem in Saudi.	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
The increase in prices in the housing market affects the Saudi citizen financially.					
Purchasing or building a property with the increased prices is a financial risk.					
Citizens do not like to take mortgages, they rather pay in cash.					
Real estate mortgages could be the solution for those who do not have the cash to purchase homes.					
The high interest applied in mortgages is the reason for the lack of home mortgages.					
The mortgages offered by the government and banks meet citizens' needs and preferences.					
The present house values are compatible with their quality.					
The increase of land price one of the reasons for the housing problem.					
The construction cost is one of the reasons for the housing problem					

Most of the homes developed in Saudi are developed by individuals.					
Building your own home is better than buying it from a real estate developer.					
The quality of housing development in Saudi has been affected negatively because it is easy to establish a substantial estate and construction office.					
The housing that is delivered to the real estate market suites citizen Preferences.					
The government regulation of design and build, impact the developer of homes to reach the consumer preferences.					
People still make modifications in homes after moving in.					
There is currently a tendency to go back to the extended family style of living, sharing the same house.					
The work the ministry of housing has completed from 2011 made a significant impact on the housing market.					
The political situation in Saudi is stable and encouraging for house purchase.					

G- Location preferences:

Please indicate how important each attribute is to the housing consumer on the scale of 1 (being very important) to 5 (not important). **1 ----------2----------3----------4----------5**					
Closeness to relatives and family.					
Quality of the neighbourhood					
The safety of the neighbourhood					
Cleanliness of the neighbourhood					
Closeness to school					
Neighbourhood service such as (shopping centre, play area, library)					
Near to public transport					
The accessibility and the quality of the roads					

The width of the street					
The name of the district and the level of people who live there.					
Design of the district					
Air quality and how far the location is from industrial area and noise.					
Knowing the soil and the land is not prone to flooding					

H- Exterior design preferences:

Please indicate how important each attribute is to the housing consumer on the scale of 1 (being very important) to 5 (not important). **1 ----------2----------3----------4----------5**					
Aesthetics and Building design					
Type and quality of finishing such as (painting, flooring, etc.)					
The size of the garden and courtyard					
Large lots size					
Bigger building size					
Bigger home even if far from the city.					
Wide parking lots					
Number of stories in the building					

I- Interior design preferences:

Please indicate how important each attribute is to the housing consumer on the scale of 1 (being very important) to 5 (not important). **1 ----------2----------3----------4----------5**					
Functionality and spaciousness of the design					
Modern design (open kitchen, open space, etc.)					
Privacy (e.g. from neighbours, visitor, …)					
Number of bedrooms					
Number of bathrooms					
The presence of a private space for the family					

Larger space for the visitors room					
The presence of a storage room					
The presence of facility rooms					
The size of the windows					
Natural light					
Choose one of the answers					
What average house size is generally sufficient for the Saudi family?	150-200 m2	250-300 m2	350-450 m2	500-700 m2	Above 700 m2
What is the minimum size of bedrooms required?	3*3 m2	3*4 m2	4*4 m2	4*5 m2	5*5 m2
What number of rooms is adequate for the Saudi family?	1	2	3	4	5
What kitchen size is adequate for the Saudi family?	3*3 m2	3*4 m2	4*4 m2	4*5 m2	5*5 m2
What is the minimum size of living room space for the Saudi family?	3*3 m2	3*4 m2	4*4 m2	4*5 m2	5*5 m2

J- Specification details preferences:

Please choose one answer for each attribute ranging from 1 (being very important) to 5 (not important). **1 ---------2----------3----------4----------5**					
Quality of the building					
Age of the building					
Environmentally friendly building					
The materials used					
Insulation					
Cold and heating system					

Appendix 2: The Interview Transcripts

Interview with Participant (A).

Are property prices commensurate with the quality?

Building quality (SPF1) is low [in the] Kingdom without a doubt, [it is] one of the main reasons for the lack of a clear standard for assessing, and [it is easy to] open construction companies in Saudi Arabia without censorship, in addition to the delivery of some of the projects to contractors' subcontractors, who are doing the project and actually are not highly efficient (FF7). Add to that the lack of supervision through the constructions stages of projects and lack of their availability. Overall quality is bad, either with a view to saving materials or [through] lack of experience and lack of attention, and [there are] many examples of this, and perhaps the poor quality of many of the high-budget government projects is proof of that, a note to all, for example, roads and streets in cities – since the quality of construction in the city is measured by the quality of its roads (FF14, LF2, SPF4).

Ease of opening [construction] offices (FF12) is certainly an important cause and also even big companies have defects [and] may find that the implementation of the project will be well in stages and is getting worse in the other stages, and [they are] not completing the project at the same pace.

Government threat, control, and accounting is an important solution to the weakness of building quality, and there is a possibility of accounting if the government wants it (FF14).

What is the average age of homes and its association with quality?

The solution is preservation and access to quality in building is difficult, and the ignorance of people may sometimes be caused by the aggravation of the problem. People generally do not trust companies (FF10), and companies are causing lack of confidences [which] wastes consumer confidence, either reputable big companies and good large ones do not bother with small projects. One of the recent problems is the former foreign contractors: after opening investment for foreigners, they work on projects as investors; foreigners worker without a good experience.

Individual development?

Individual development is the foundation in Saudi Arabia and I believe it constitutes more than 90% of the development of the houses in general in Saudi Arabia, which is bad, but the reason for this is lack of an alternative, major real estate development companies in the country are

not benefit for the sector and do not have a role (FF10). For example, Company (Dar Al-Arkan) of the largest companies in Saudi Arabia, but their work is to develop the land only and infrastructure, and where to sell it actually does not have a real estate development [company]. Lack of people's trust in companies is natural with the lack of companies operating correctly.

Also, government institutions did not do their part as they do not have anyone to guide them in case you want a contractor [they] do not have any quality contractors to serve the people. [It is a c]omplex problem and there is no clarity and, with the large number of government projects, there has been pressure and lack of ability to monitor and consider contractors' and small and private enterprises' problems.

The role of government?

Has an essential role to play in cities where the secretariats and bodies; they are responsible for problems both on an individual domain or collectively. As I said, control and accountability is a key reason, and add to that the lack of awareness and setting goals and thinking [about] problems and putting the right man in the right place and knowing the powers of each person (FF14).

Solutions about the quality of construction?

The current situation [is that] people want individual development and play and, in case of any problem, the search begins for specialists to find solutions to those problems (FF10). Where people often aspire to save and not to search for consultants in the beginning and develop individually and [so] they contract with foreign contractors and workers without any experience or classification (FF11). Consultants and the notoriety of some consultants may be one of the reasons for that, in addition to the large competition and [so] works of high quality often cannot profit.

Are there new ways of building in Saudi Arabia, either the traditional way, by using bricks, or is cement continuing to prevail?

America built the buildings in concrete rules and the buildings are wood, which is expensive, but the nature of life there [means] different homes – size is smaller and the atmosphere is different from Saudi Arabia, but there remains the problem of fires (SPF4). Precast concrete is a good solution, but you need a large number of templates for fixed and the cost is high in making a small number of units, [which is] a solution to the macro level as in the housing

projects. For example, a housing project of the National Guard and the project's Foreign Ministry projects in Jubail and Yanbu, both on a small-scale home implementation.

The cost of construction?

Ten years ago, the cost of construction of the building ranged from 60% to 70% of the project, where now the ground costs 60% to 70% (FF8, FF9). The problem is the cost of land and rising prices for the development of land and when it is sold it only brings more profit to real estate development, and this is what they are doing.

Since 1985 to 2005, the price of land has not changed dramatically; during those years [there] was a slight increase in price per square metre of residential land between SR400-500 per metre, with oil [prices] high in 2005 and the monopoly of land, the two contributed to the land price rise significantly. Saudi Arabia is a large country, more than 2 million square kilometres. However, yard prices in Saudi Arabia outweigh a lot of European countries; [it is a] multilateral problem (FF8).

Does the cost of rising land prices impact on the quality of construction?

Incorrect high land [price] is the reason for the scarcity of housing in either poor quality of time and do not have a link.

Most buildings in Saudi Arabia are only 30 years old. Does this mean that there is a need to change every 30 years?

Of course, but the problem exists in all countries of the world, which is normal under the value of the home; with time, in terms of natural factors and atmosphere, materials erode (SPF2).

Maintenance has a role?

Certainly, maintenance tasks, especially in terms of the obvious problems, should not neglect the obvious problems especially in the plumbing and water leaks. In our buildings, rare problems happen in the structural part and most of the problems are extensions of electrical, plumbing and poor quality of the final material check.

What are the reasons for the large number of amendments in Saudi Arabia after the houses are bought?

Change is normal with high population growth, where we are [one of] the top countries in the world in population growth, and added to that the changing requirements of the family where children grow up and need more space (FF15).

Is there a solution for that, for example, the use of gypsum walls internally?

The problem is not the amendment; the problem is [the varying] needs of the family The family in the process of growth needs about 300 m in the current Saudi situation, as children age they need more space, and there is a solution: either moving house because he is bigger, or make amendments to the current home (FF16, EX4).

Aare the sizes of rooms and spaces appropriate and what is the reason for the desire of the people to always have big spaces, even if they are not helpful?

It is very difficult to change the culture of the people [if] they do not know the area, [it is] largely a culture of the country, and are treated to the principle of Aga where they grow up as much as possible without a goal. I mean the real application and the ability to know and need to learn about the culture is a difficult requirement [and is] absent where access is simple (INF1, INF4).

What do you think of other underutilised spaces such as external courtyards and roof?

The surface is difficult to exploit fully and allowing an increase in roles requires the presence of elevators to give independence. The collective housing for families is a good thing but it depends on the family culture (EXF8). The outer courtyard municipal laws and regulations of the neighbours 2m. 1/6 of good street size in terms of safety and security, but this wastes space (LF9). It is building solutions on the ground floor of the (silent) and there it works in an irregular manner (INF3).

[There] is actually no need [for visitors' spaces], but as a culture they are held in case of need or when you sell the home, [as the buyers] usually like the dining room and other elements (INF7).

Is it good for the requirements of the government building and what reason do some people work planners someone to government bodies and the other for the actual implementation?

Conditions are generally good, but you need to have applied clearly and be well thought out, but also [due to] the greed of the people sometimes they desire to invest in an irregular manner (FF14). Action Plans are ordered and carried out by people to build rooms in the defects and work side entrances to become one Fula more than one unit, and this is causing a lot of problems, especially in small spaces and small streets, and could be the cause of the occurrence of congestion and population overcrowding in a neighbourhood (LF2). However, unfortunately there is no government control of such irregularities and problems.

What insulations are used in Saudi Arabia?

What is supposed to be used is a red brick 30 sm thermal insulation (SPF5) and this is not true, and people consider the cost of construction time only. Do you not know that during a short period in the event of work insulations correctly will save a lot of money in electricity bills? Thermal insulation is mandatory at this time, but red brick is used to cheat the system.

Real insulation is to put a brick with minimum size of 10 sm and put the separation and then put another brick times the size of at least 15sm.

What type windows are used?

Glass aluminium often depends on double-glazed basic insulation, which depends on the strength and size of the windows industry and the size of the sector is the quality of the change which is not financially costly (INF10).

Why do people not use the outer extension for the plumbing pipes?

Feeding tubes are hardly used externally as a result of the atmosphere, warm summers and cold winters (SPF6). It is possible to use [the pipe exchange] outside. It remains the solution to keep the building [free] from leaks; it is the work of tests to find out the quality of plumbing and piping and guarantee it.

How is the soil of the land influential in Saudi Arabia, and how are they dealing with it?

Fertile land varies from one region to another in Saudi Arabia and people actually do not know the soil and often buy land without a clear background on the soil site. Access to the original soil or rock in some locations is very difficult and you need to go down more than 10 metres

below street level (LF13). One solution is to put a layer of concrete over the whole earth after going down to a certain level, which is somewhat expensive.

What are the causes of the sinking of some neighbourhoods in the past years after downpours?

There are many problems about the discharge of soil in many neighbourhoods, and if found to discharge the sink and without maintenance, and added to that there is the amount of unexpected rain that falls heavily, [which] exacerbates the problem (LF8). Lack of interest in level neighbourhoods and put the neighbourhoods in the way of streams flood is an important cause of the problem, too, where also some locations are not placed in the right place environmentally (LF12).

What cooling and heating systems are used in Saudi Arabia?

Heating systems are little used in Saudi Arabia and are often only heaters for water. The cooling systems are a major development in the use of air conditioners in Saudi Arabia, and are used in all the blank spaces, which is essential in the Saudi home and extremely expensive with the current development of mechanical sector (SPF6).

Is there a difference in terms of construction in the Kingdom?

There is a slight difference in conditions between regions but problems exist even with this difference.

Interview with participant (B).

What's new in the work of the Ministry?

They are currently working on the infrastructure of some of the sites to be presented and distributed to citizens in the land of the loan being done by the ministry programme development. The Ministry does not now develop any residential villas (FF17).

I note the limited number of units and land in some areas, compared to the number of requests, and the plentiful supply in some areas where demand low.

The Ministry's main goal is the development and distribution of residential blocks; the Ministry is developing a residential supply obtained regardless of the demand in the region. Residential distribution will be according to the mechanism of the housing support and the points made by the Ministry, and, as is well known, the biggest demand for housing units is in the major areas of Riyadh, Makkah and the Eastern Province.

But I note that there are some residential units that will be distributed shortly. What are these projects?

Some of the projects that will be distributed soon are not the creation or development of the Ministry of Housing. They are old projects which have been developed by the Housing Authority or by the previous King Abdullah for his parents' Housing Charity Institution.

How is the design deal with the territory?

Projects are often in residential land distribution to supply an area of 500 m to achieve the principle of justice and be in lengths of 25 m * 20 m, and with controls and conditions for construction (EX4, EX5).

What are the things that have to be seen to on the site before starting the planning?

The first and fundamental criterion is to keep the developed area to be 500 m, in addition to maintaining the nature of the ground, and convenient assistance is provided by the Ministry of Municipal and Rural Affair's standards. There are attempts by the Ministry of Housing to get out of the ordinary neighbourhood designs and increase the number of green spaces (EX4, EX3, and LF11).

The total area of the project, how it is distributed and how much spare is there for residents' use for services and places of entertainment?

Some of the projects in the services and entertainment [that make] up to 40% of the total project are the most prominent services, schools, commercial centres and others. Of course, these services vary depending on the project site. Projects near cities may not need schools for each category, which certainly depends on the population numbers (LF11, LF7, LF5 and LF6).

Is there a plan to integrate the population in the regeneration of the Ministry and the sale of some of the pieces or are the projects dedicated solely to asylum residential support only?

The main objective of the Ministry's projects is to seek residents who registered support for the Ministry, and there are no items for sale or investment.

Have you taken action to limit or know the wishes of the people for the development?

The Ministry aimed mainly to meet the work requirement, [which was done by] simple studies and taking examples and realistic analysis, such as the island neighbourhood in Riyadh.

Are there problems in locations, whether with the soil and so on?

Some sites have been suspended due to the development of the soil and the high cost that will be on the department and the citizens in the future (LF13).

Is there a link between the Ministry's projects and public transport?

[In] some of the projects there was the establishment of an internal transfer network in the centre of the neighbourhood [which] may be linked to the basic public transport network, and often this will be in a project area of more than 10 million [people] (LF7).

Is there a mechanism to create an identity for housing projects and the designation of the new neighbourhoods?

The names of the neighbourhoods are within the names of neighbourhoods in the Ministry of Municipal and Rural Affairs. The assistant core has not been changed and we are working on a unified identity for the Ministry's projects.

Have previous study projects experienced social problems?

There was a field study simply to learn the needs people often have to work individually and not with engineers from the Ministry.

Is there a difference in the projects in different areas?

Unified models were applied to projects in areas where there are differences between them. The Ministry uses somewhat similar units according to specific criteria. Some units provide the possibility of future expansion and give the beneficiary the possibility for expansion in the future. According to his need based on the average family size, which was calculated to seven people, was designed based on this number, regardless of the actual number of family members and the need of the individual family, where all the examples are similar. The only change was in the outer shape and colours (EX1). [The Ministry has] been working on the similarity of design and implementation to keep the costs down, so that they do not exceed the cost of building a housing unit for 500 000 riyals, about 85 000 British pounds (FF13, FF14).

What is the surface construction of a villa and what are its elements?

Flats in Fella are 250 m in size and the goal is that they cost no more than about 500,000 riyals, and often consist of four bedrooms, living room, visitors' space, and a kitchen and three bathrooms (INF4, INF5, INF6, INF8). There is potential for expansion in the future.

Are there any objections or problems in previous projects?

So far, there have not been many projects, and I have not heard of any objections.

What is the population density of the neighbourhoods?

It is one unit for every citizen, ranging from 40% to 60% residential. The work was distributed without a study of the population density of the expected regeneration has only traffic studies exits and entrances for the safety (LF3). Three positions were allocated for each unit, one internal and two external.

Who is going to be responsible for operation and maintenance?

The Ministry will [be responsible for] the operation and maintenance of neighbourhoods.

Are they modern designs?

The modernity in designs and try to create new ideas in the project planning and on a per unit range scale (INF2).

Are there conditions for coatings?

Yes, there are conditions for coatings [laid down] by the Saudi Building Code (FF14).

Why is there no development of residential apartments and groves?

There is now work on this matter in cooperation with the private sector in high-density areas such as Riyadh to develop groves with multiple roles. It was a tender in a Riyadh project; tenders were awarded to five companies for real estate development.

Where is the Riyadh project located and how many units are in it?

The Riyadh project is close to the airport; part of it is residential and the other part will be groves with multiple roles and it is currently the only project in Riyadh and [comprises] 7,200 units.

Is the Ministry working to lower real estate prices?

The Ministry is working and trying to support a large decline in real estate, which is expected to end with the Ministry's projects, and to impose fees on vacant lands [to] lower real estate prices in the future.

What is the main objective of the Ministry?

The main objective is destined to meet the housing needs of the citizens (FF17).

What is the cost of infrastructure projects that the Ministry is developing?

The Ministry’s development costs are SR300 per metre, including tiles, lighting, and sanitation, with the participation of other government agencies, and getting approval.

Interview with participant (C).

What is the current real estate situation in Saudi Arabia?

There is a shift of the property to the stock market due to the high and low real estate prices; stock prices will be seeing price changes in the future.

Will we see an impact on the real estate companies?

Real estate companies are not particularly easily affected if they own a lot of low-value land. [In that case], change in land prices is not a significant impact on major companies, where it additive increases and most real estate companies evaluated territory old prices of 20 and 30 years old did not renew the assessment.

Do you see that land fees are the solution to high prices?

In land fees I think we should take advantage of the experiences of our neighbouring countries to see if they were useful or not, such as Jordan. The reason for the price increase was larger demand to the buyers and increased inflation. So that the charges on the land are not a solution to the problem of rising prices. The solution is to reclaim that has been robbed of some influence, as the Ministry of Justice is responsible for it, and the recovery of some of the land.

There are those who believe that the land fee decision with recovery of stolen powers of the land is the solution What do you think?

Any decision needs to [result from an] in-depth study of all the positive and negative aspects, as such decisions are difficult to be undone or altered after application.

How high are real estate prices in the countries that have implemented land fees?

Land prices are too high in Jordan, where there are up to SR5000 per metre, approximately £900, due to land fees. The current high price of land in Saudi Arabia is or is not realistic because one of the main reasons is government lands that were taken from a long-time central cities have not been developed yet (FF14).

What are the solutions?

One of the most important solutions is to facilitate government regulations, in terms of dealing with municipalities, which takes a long time and does not help them quickly achieve a routine procedure that is unproductive when you want it, where the infrastructure for the development of raw land takes the government – when [using] due process – two to four years, and these

measures have made people not willing to develop (FF14). For example, lands and heirs of King Khalid have been disabled; an area of 40 million square metres over 30 years has not been utilised so far, and [there are] many examples like that. Also, the mortgages systems are not good yet (FF6), where people still prefer to pay cash (FF3).

How much is the cost of infrastructure development?

Development costs the real estate development companies SR60 to SR150 per metre.

What do you think of the steps undertaken by the Ministry of Housing?

The Housing Ministry does not work well for the case of the housing problem in Saudi Arabia, even with access to financial and logistical support, the government has not been able to find solutions (FF14, FF17).

Old projects such as Al Jazeera and Al Mather neighbourhood were successful by all standards, but unfortunately have not been utilised; the current projects are inappropriate and lack a lot and cannot be compared to previous successful projects. Where previously the Ministry had to stop the development and construction of the houses because of the problems faced by the terms of the work a consultant and port projects and failed to do so and halted construction, and then decided to work on the infrastructure and delivery of land for the development of citizens who are of the development. This is another problem of implementation where the suffering of the citizens will be individually larger than [that of] the Ministry (FF17).

Are the Ministry's project sites good?

Most of the Ministry's projects are outside the cities and [in] remote areas, and this will contribute to heighten real estate prices in the areas between the project and the city.

Why increase the demand and growth in the big cities?

I think that the displacement of the population of large cities is one of the most important reasons, where migration to the cities provides basic services and [meets] the needs of the people. Stopping the migration is important in addressing the problem of housing development, and where to find services in the villages has become an urgent need. However, it must be planned properly in small towns, where we saw rising prices there after the opening of universities; this could lead to the same problems of big cities.

In your opinion, now the citizen wants to buy a house is it the right time now?

I think back to the old neighbourhoods and [they have been] re-developed better than the development of new neighbourhoods. [In the] new neighbourhoods, prices are high and up to more than 4,000 riyals per metre, while in older neighbourhoods such as Malaz Riyadh prices are about 2,000 riyals per metre but people do not want [to live there] (LF10).

What are the things that contribute to change the perspective of the buyer on the site?

Previously people had looked for homes close to their families, either at the moment this change does not have a system where a regional bloc, as in the past and who was one of the reasons for the rise in earlier. Where the quality and accessibility of the neighbourhood is important (LF2, LF8). Moreover, the design of the street now takes a big part of the project (LF9, LF11). In the homes, there is the location in the city, and the room and bathroom numbers (EX6, INF4, INF5).

What do you think of real estate markets in the Gulf?

Property markets in the Gulf are too small to compare with the situationin Saudi Arabia. [Take] Qatar, for example, where all land belongs to the government and is distributed to the citizens and there was no real estate market until recently. The opening of a new real estate market in the country is based on foreign arrivals; however, prices are currently very high there.

Who is the beneficiary of the current state of the property in Saudi Arabia?

There is no single beneficiary status ; it is cumulative, from the first seller of the land 50 years ago to the broker, the buyer, and the developer – all benefited during different periods, so it is difficult to calculate the real estate currently [because of the] mistakes of the past.

Appendix 3: The Focus Group Transcripts

An Investigation into the Housing problem in Saudi Arabia; new approach protocols and solutions.

You are invited to take part in a research study. It is important that you understand the purposes of the research and its involvement before you make your decision. Please take time to read the following information. If there is something unclear or you need more information, please do not hesitate to ask us. Take your time to decide whether you want to take part of this focus group.
This research intends to investigate and identify the major problems and challenges in the housing sector in Saudi Arabia. The aim of this focus group is to validate the model that reflects housing preferences and choices in society based upon the behavioural dynamism of people and within the framework of preferences and choices for housing attributes. You will be ask to consider various housing preferences in Saudi Arabia through four perspectives:

- Housing problem.
- Financial preferences.
- Location preferences.
- Design preferences (Internal & External).

It is up to you to decide whether to take part. You are still free to withdraw at any time and without giving a reason. A decision to withdraw will not affect your rights.
The focus group will take approximately 2 to 3 hour.
All the conversations will recorded. Taking part in this focus group has no risk, and your participation will be very beneficial for the research to validate the model for housing consumer preferences.
This study has received ethical approval from LJMU Research Ethics Committee (Ref:14/BUE/001 in 28/01/2014).
Thank you for your cooperation.

Kind regards,

Mohammad A Algrnas
LJMU, School of the Built Environment, Best Institution, Henry Cotton Building
15-21 Webster St L3 2ET
M.A.Algrnas@2013.ljmu.ac.uk.

Dr. Emma Mulliner
Director of Study
Room 3.04 Cherie Booth Building, Byrom Street, Liverpool, L3 3AF
E.K.Mulliner@ljmu.ac.uk

An Investigation into the Housing problem in Saudi Arabia; new approach protocols and solutions.

You are invited to take part in a research study. It is important that you understand the purposes of the research and its involvement before you make your decision. Please take time to read the following information. If there is something unclear or you need more information, please do not

Participant Five – Six – Sevan, focus group

If the consumer wants to buy a house, what are the key elements to start with?

6: The first is the location of the house and knowing the needs of the bedrooms and bathroom and the design of the house (INF4, INF5, INF1).

When making the decision to buy a house, what is the consumer looking for?

6: It often depends about the budget and location, then the home design (internal and external), finally, the finishing (EX2).

7: I agree with that, the budget gives a limitation in the options, but I think the need of psychological comfort in the new home is important, because there may be a need for something [that is] missing and [the buyer is] looking to complete it, for example, incomplete rooms or [no] room for visitors (INF3, INF1). I think that every person looks at what is missing, of course, when choosing the house there are several things that distinguish a home from another location, such as finishing the whole design, change in the selection, additions to the quality of the work, and executing companies (EX2, LF2).

What is the most important element?

6: Design.

7: Design because consumers thoughts have changed in the last few years, where people move from focusing on their needs, to now looking for comfort as well.

This means that consumers prefer a comfortable house in an ordinary neighbourhood to a normal house in a good location?

6: That is right; design has become now important for consumers.

7: This is true, and some people still think a big home is still the favourite, but the truth is not every larger space is comfortable.

What are the important elements in the selection of the site – based on what consumers choose as the sites of their homes?

6: Services in the neighbourhood (school-good street-neighbours) (LF6, LF5, LF11, LF9).

7: In addition to that, the proximity to things such as family-work-services, and distance from highways and entrances to the neighbourhood; and added to that, the site of the house in the

neighbourhood and the location of the neighbourhood in the city. Also, residents in the neighbourhood and neighbours are important. In addition, the services and soil of the land and ventilation (LF2, LF6, LF8, LF11, LF13).

6: Cleanliness, proximity thing and distance from the family and the workplace (LF4).

7: Proximity and distance from the family home was important in the past more than now; [because] social cohesion is less frequent in recent years, where it was in the past that a person should see his parents every day was a must and was important, [where it is] now becoming less so. Where the people now are more isolationist at this time, where everyone has his own private place and only sees parents 3-4 times a week.

Does the neighbourhood name actually affect those who want to buy a home?

7: It is true I think, the name of the neighbourhood affect the choices, but I have the conviction that every neighbourhood has a distinctive part, so you could find in some neighbourhoods there is a part named Golden Square and other titles (LF10). It is intended from the planner to do a characteristic neighbourhood and bring people with higher incomes to buy the largest houses, and there are some neighbourhoods that are equipped and designed in a way provide a large [amount of] land with plots around 800-900 m for that reason (EX4). It consists of a layer of people with high income in the neighbourhood who can buy a larger-size home.

However, there is a revival of famous names. Are people looking for some neighbourhood names?

7: Any famous neighbourhood often becomes good by the marketing of real estate and neighbourhood residents (EX4).

6: In the past there were famous neighbourhoods because of their names where you find a tribe or a particular class in every neighbourhood (EX4).

Does that exist now?

6: Yes, it still exists, for example, neighbourhood Alwahi in Riyadh is very famous, but there are flaws in the streets and municipal services. However, the prices are very high there (EX4, LF11, LF2).

Which means that people consider the name of the neighbourhood?

7: Certainly [people] sometimes look at adjacent neighbourhoods because they affect the neighbourhood positively or negatively, for example, neighbourhood Al Malqa in Riyadh is a distinctive neighbourhood and the level of people is high, but its most prominent disadvantage is the adjacent neighbourhoods are not that good. This affects the reputation of the neighbourhood, where you can find neighbourhood government grants where people got a free home, [they did] not pay any amount to get a home, which has led to another level of people [living there], and when there is differentiation in neighbourhood classes sometimes crimes and social problems arise.

Does this mean that the level and quality of the population in the neighbourhood affect the choice of the home?

7: It is true that over the past and present, and sometimes the near neighbouring districts also have an impact, where the population density and the different level of education [have an effect].

About external preferences of the design, what are the points that consumers prefer more?

6: There are different preferences, but the land size, the outside garden, parking lots and street surrounding the home [are the main ones] (EX4, EX3, EX 5, EX7, LF9).

7: There is an important point, I think, that in every region there are different conditions of build, and some municipalities in the cities have different conditions, which contribute to the requirements of external design, such as an area of land and flats' construction. For example, neighbourhood AS-Sahafah in Riyadh is dotted with small and narrow streets, and this led to an increased population density. Many of the external design conditions depend on the terms of the municipalities.

Do minimize the spaces and give useful space needs and is this acceptable to consumers? Will consumers prefer large spaces regardless of need?

6: Increasing roles and the small space is a good solution, for example, in Kuwait [people] were allowed to increase domestic roles [of rooms] and this contributed to meet a lot of the population's needs, especially as expanding the use of the roof is considered an easy thing to do (EXF8), where in the past the roof was just used for storage only. So, I see that the increase in roles and minimising the space is very positive.

7: The culture of society is very important and is really influential in this matter. The idea of historic villas and town planning making homes separated came from the basic design of the cities that has been bring it from American culture.

Before the boom and planning of modern cities, there was contiguous vertical expansion of homes, but it turned into a horizontal expansion during the past 40 years, and with the increasing numbers of people, large accidental expansion [took place], where up Riyadh Qatar to 40 km, and this is cumbersome for the government in terms of the provision of services (electricity-water-sewage-roads) and also in terms of security (LF3).

However, with the increase in housing problems in big cities the government started changing in requirements, for example, it seemed to allow construction on 60% of the surface area after it had been 30%, and I think many requirements will be changed such as the minimum area of the house.

Do you see that members of the community accept buying small-sized houses?

7: There are influential social factors, but this does not preclude that it is accepted by people for all their needs. The big houses are becoming a large burden on the families in terms of cost, bills and the need to service the large-sized houses more often, and this has led to a change in the culture.

Is it acceptable for people, for example, to buy a small house that looks like an apartment but with a private entrance? Do they accept it is worth paying money for it?

7: If it respects and gives all the fundamentals and the needs of the consumer and [their] privacy, I think it will be a very successful and helpful solution to the housing problem; the problems that occurred in the apartments in the past will not be repeated again. The absence of a special department for the owners and involving the owners of apartments in the building in the bills and the lack of maintenance of the building will not be repeated in the event of a detached small house.

6: Apartment ownership did not work due to the lack of a (general union for the owners) and this made consumers reluctant to buy them.

7: In some areas, the apartments have succeeded because they were present from the very beginning, where they brought and imported the idea from Egypt, which also contributed to the different culture of the population in some areas.

Will consumers want in a small house within the city more than a large house outside the city?

7: There are some pros and cons and they are based on consumer needs: is there a need for them to come to the city on a regular basis, and added to that the problem of the lack of public transportation is very important and influential (EX6).

6: The suburbs are sometimes better because of the lack of congestion and the better ventilation (EX6).

Does that mean consumers will not be affected by the lack of services in the suburbs? Or will they look at the elements of the site?

7: I think older [people who] are looking for quiet and [to be] away from the congestion would prefer the suburbs (EX6).

6: The length of distance travelled and distance from the parents, is I think influential in the choice of the home (EX6).

7: In addition, we are suffering from the idea of central services where this thing killed the spirit of the outskirts of the city. To be honest, it is now changed to provide multi-service centres in every city and stop focusing only on the centre of the city (LF11).

6: I know many consumers [who] bought homes in the suburbs did not continue there and returned to live in the cities, as long distances and congestion at the entrances to cities take a long time [to get through].

7: I think also that public transportation projects, when they are finished, will be an important tributary to the people of the migration of to the suburbs (LF7).

6: The old thought about houses have ended, where now the cost is considered important and, as I said earlier, a small house in which every need is available is better than a big one [which meets fewer] needs. For example, putting the garden on the [roof] surface could save a lot of money and it is a very excellent solution, as I see that minimising the land for each house is very necessary.

7: It is true that reducing the size of land contributes to cost reduction.

Does the exterior façade affect consumer choices?

7: I think yes, but not significantly, [as it is] easy to do a modification to it (EX1).

6: I think this is also affected by the buyer's financial capacity – you can have what you can afford, and often the beautiful design and shape is a requirement for all people.

7: Simplicity and beautiful elements are certainly attractive to consumers and I think people do not mind to pay additional sums for that (EX1).

What are the internal design elements influencing the buying decision of consumers with regard to their homes?

6: I think the number of rooms and spaces is important. The size of the rooms, 4*5 m, is suitable, and the living room for family. I think consumers prefer for each bedroom [to have a] private bathroom (INF1, INF3, INF4, INF5, INF6).

7: Three to four bedrooms are very suitable for the family, especially if Saudi Arabia provides a private bathroom for each room. In addition, the living room is considered an important and influential element where it is the heart of the home.

6: It is possible for the living room to be multi-use; it may be as a place to receive guests, if this is prepared in the design and [properly] equipped, we could dispense with the visitors' rooms (INF7).

7: It is true that many things have changed in consumer preferences where in the past there was a place for two visitors' rooms, one for men and another for women. Also, there is a reduction in the size of guest rooms now (INF7).

Is it possible the outside supplementary room has become a visitors' room?

6: Yes, and I think the idea seems to apply in some homes now.

7: I am against the idea that the visitors' room is outside the home building, as it leads to difficulty in servicing the room, [and there are problems regarding] control and safety from theft where [these rooms are] often isolated from the home (INF7).

6: Visitors' rooms have become a very expensive component [and are] used only where there is a little distracted it cost a lot of thing, which takes from 30% to 40% of the area in the ground floor! Changing them and finding alternatives is very important and necessary.

7: The place for visitors should be directly linked to the house and be there only (separation from seeing) of distinctive solution and gives more use of the place. Through the work on value

engineering for the homes, we found the presence of the guest rooms consumes high [costs] without [providing any] benefit.

6: There are important elements also, such as the kitchen and the storage room, which I see must be below, and the kitchen must not be an open house (INF8, INF9).

7: True. The kitchen should be one [room]; a size of 5 * 5 m is enough; at the present time, some people have begun to develop an indoor and outdoor kitchen, [but] this is expensive and there is no need for it.

There is a change in modern design, where open spaces [are incorporated], which is good, but sometimes [they are] designed in a way that is not in proportion socially. Putting an open kitchen on the house leads to the spread of smells in the house, and is not suitable for Saudi Arabian families (INF2).

6 agreed with 7, and also stated that a separate kitchen offered the possibility to develop a store and house cleaner's room, and preferably be below not on the surface.

7: One of the important elements in the design is the natural lighting; it creates a lovely atmosphere at home and reduce electricity consumption (INF10, INF 11).

6: It is true, and this depends on the size of the windows, even if they do not open to provide lighting, and are thermally flawed, but it is possible that they have been positioned to avoid the heat.

7: Large windows with air-conditioning can [make it] expensive to heat air and dust, but are favoured because of the need for natural lighting (INF 11, SPF6).

6: It is true, and there is a contradiction where people prefer large windows but the weather in Saudi Arabia does not fit completely with this preference (INF10).

How to deal with privacy at home?

7: Privacy is very important and must be processed either under the guidance of buildings and windows, and I think that [these are] the terms of construction the government should focus on, rather than focusing on fences surrounding houses.

There are also privacy spaces within the home where family members should be given insulation between the blanks.

6: There is still a preference from the community for the presence of a wall around the house, though this takes an area of land.

What are the details of the homes that consumers prefer?

6: The evolution of the consumer knowing the types of air-conditioning, for example, Sblt and Central and others. Also, the consumer want the presence of insulation inside and outside the building because it contributes to reducing costs (SPF6).

7: The extension of the air-conditioning is important from the beginning, while the insulation has become a mandatory requirement from the government in all the houses, which provides about a 30% reduction in energy usage. In general, people do not know much about it; it is based on the implementing real estate company who built the homes (SPF5, SPF6).

The materials used and finishing, do they affect consumers in regard to the purchase of the house?

7: Yes, finishing apparently affects the quality of the construction. The fact is that not a lot of people bring [along] parties competent to examine the house, although there are many companies doing reports on the quality of the building, which is rather expensive (SPF4).

Do people seek quality and are they willing to pay more for it?

7: Yes, I think so. Many consumers have not been able to access high-quality companies. There are a lot of structural problems, and cracks and leaks may occur, [which are] big problems for the home.

6: Sometimes buy a used home may be a good solution because [when] you look for a home that has been used you can find out if there was any problem [with it].

7: True, the used home should be a maximum for five years, which is good and suitable for purchase, and disadvantages have been appearing over time.

6: And the materials used in the previous time are generally better materials than now, and this could be a positive for used homes.

Is sustainability in green houses and buildings an important element for consumers?

6: I do not think society has knowledge of green buildings, but it is special preference (SPF3).

7: The government should teach the benefits of this type of building, which is an important requirement (SPF3).

What amount do you think the consumer could pay for a home?

7: I think between 500-600 thousand Saudi riyals; this is what most of the young consumers could pay, and I think integration of responsibility between banks, companies and government is important to get to this preference of the consumer. Without the cooperation of all parties, it would be very difficult to find solutions to the housing problem in Saudi Arabia.

6: Ten years ago, 500,000 Saudi riyals could buy a home. At the moment, consumers cannot buy the land and there is a lot in the queues at the Ministry of Housing and demand is increasing annually.

Will the consumer accept buying a small house, for example, 100 m for 700,000 Saudi riyals?

7: I think yes, consumers have purchased apartments and there is less space, specifications and prices approach. I think that the purchase of a small house at that price would be the dream of every citizen.

6: I think changing the terms of the construction is necessary and must be updated. Added to that, the loans from the banks depending on the conditions of the homes should be reconsidered by finding additional sources of funding.

7: There is a change in society in building a culture, but it must accompanied by a change in the terms of construction in order to reach ideal solutions.

What are the consumers looking for when buying a house?

5: Some people look for the outer space and the design of the house and some others look for the comfort inside the house and the interior design and the distribution of voids and needs.

In addition to that, the location and place of the neighbourhood in the city and place of the house within the neighbourhood. In my opinion, the site is the most important point in the search for a home, and all the elements that are directly related to the financial aspect and the price.

What are the main items that are considered in the site?

5: Proximity and family services in the neighbourhood and near the services of the neighbourhood and the presence of shops, and added to that method of access to the location and the size of the streets surrounding the house, and there is also a knowledge of the history of the neighbourhood and the soil of the neighbourhood, because they may be affected in the future (LF1, LF6, LF9, LF13, LF8).

Some neighbourhoods in every city are famous for their quality and consumers think they have a good reputation, and add to that the quality of the population, which contributes to the reputation of the neighbourhood, and the impact on the level of cleanliness, security and order in the neighbourhood (LF10, LF4, LF3).

Good design of the neighbourhood and providing landscaping is desirable for consumers; some modern designs for living may suit some people but are not suitable for some, but the design of the neighbourhood may be the cause of preserving the security of the few entrances and ease of control (LF11, LF10, LF9).

What are the most prominent elements of the exterior design that affect consumers?

5: Exterior façades are important for some people, and added to that the external finishes of the house and the materials used, and this is an important element for some private consumers (women) as the form of the façades of the house are a cause for boasting about. Some may make additional payments to get a house with the best façade and form (EX1). These aesthetic elements have contributed to raise prices for some houses and the cost increases with the absence of some of the most important elements.

[People also prefer] out side gardens, swimming pools, where some people do not mind [trading a smaller] built-up area for additional space outside and [somewhere to put] the car (EX3). It is placed discretionary area of the house from the beginning and are based on the financial viability but the size of home to the majority of the granular and see that an area of 400 m is very suitable for Saudi Arabian families, and places the achievement of all the residential requirements in this area, which is certainly linked to the number of family members (EX4, EX5).

Are minimised space and the development of green spaces suitable solutions for the problem of a lack of surface space?

5: It is a very good solution, but the culture of the community is difficult [with regard to] this particular thing; the idea of going up to the roof is rather difficult and the community needs time to change this [view].

Do consumers prefer a small house in the city or on the outskirts of a large city?

5: In general, most of the consumers prefer a larger space, even if there is no need for it, but there are many downsides to buying a house in the outskirts of the city, [for example,] lack of services, but often thinking positive only is what makes consumers take a remote home. People should be made aware that it is not shameful to own a small home if it meets all their needs.

What are the internal design elements that are important to consumers when buying their house?

5: Many interior elements, such as number of rooms, toilets, and this depends on the number of family members, and five bedrooms are seen as a suitable number for a family for 20 years and is suitable for a small family and can be expanded (INF4, INF5, INF6).

What are appropriate room sizes?

5: 3*4 to 4*4 are appropriate sizes, and often consumers are looking for more than that, but this design parameter is sufficient, and if there is a toilet between each two bedrooms. The living room is an important element and an influential one, and I think that an area of 5*4 preferably be separated and used for visitors where they are intended for family, or are finding a private room for the family and is used as a living room for visitors, and this is a good solution where it is the use of vacuum in the promised things, because at the moment allocating places for visitors takes a large area of the house and this increases the cost to the consumer without giving them any benefit (INF4, INF5, INF3,INF7).

Are there other important elements?

5: I think to take advantage of the surface is very important, especially with small spaces. Also, [priority] must be given to the distribution and function and the preservation of privacy, which is the role of the designer, such as the development of the entrances to the side and the separation of the visitors' section from [the family] home, and also to maintain privacy from neighbours (INF7). It is important [to have] a separate kitchen and not to make it open to the living room, where the modern designs are to make the kitchen part of the living room, and this is a negative spread, where the smell of cooking [permeates the] home (INF2).

Are there any other elements you see as important internally?

5: Natural lighting is very important as it contributes to energy saving and [adds to] the aesthetic of the house; we see the development of large windows that do not open, but give the lighting and the spirit of the house, but [they] must cut off heat well. Windows are also an important privacy setting, where breakers and well-designed to give privacy to the spaces design. Finally, I think the presence of an external store and the extension is necessary at the present time; one of the elements that consumers are looking for is placed cellar services, but [this is] a little expensive (INF10, INF11).

Are there private details that attract buyers for some houses?

5: Air-conditioning is important and I think that the central air-conditioning is the type that is desired by people, but it is expensive, but Sublt system is good, practical and inexpensive (SPF6).

Do people consider the quality and the materials used?

5: People consider only the visible materials used ostensibly inside. Construction is difficult for the average consumer to where most of people know the quality after buying the house, and I think that it is necessary to enlist the service of experts when purchasing a home (SPF4).

Do consumers see the importance of environmental and green buildings?

5: In fact, few real estate development companies are interested in this matter, [so it] is natural that consumers are ignorant, and they need to be shown where necessary and there are some category of educated people are looking for this building (SPF3).

Participant One – Two - Three – four, focus group

If you want to buy a house, what are the elements that you begin by looking for?

1: Neighbourhood design, location is very important.

2: Neighbourhood and place but also the distribution of interior elements.

What are the elements in the location that you think affect your choices?

1: Proximity and distance from services, shops and facilities and how far from the city centre and parents (LF1, LF6).

2: Site in the middle important and I prefer a home downtown.

1: Neighbourhood residents and the name of the neighbourhood are key elements in the choice, where they relate to the safety and cleanliness of the neighbourhood (LF3, LF4, LF2).

2: Knowing the level of people in the neighbourhood is important; also, it should be near to the services, schools, university and work (LF6, LF5).

1: The streets in the neighbourhood are also important and the streets surrounding the home, the neighbourhood planning and provision of footpaths and gardens (LF9, LF11).

2: I think the neighbourhood design is important for some buyers (LF11).

What are the important elements in the design?

1: Having a large size and number of rooms and restrooms is a negative in my opinion, because if the rooms were more than I need this will be a financial [expense] and expensive waste of cleaning. [However,] I see a big room could be divided later as needed, [which is] a good solution to the problems of the design and provision of money and effort (INF4, INF5, INF6).

2: Using a big space is not good for insulation the voice (INF4).

1: I also see the large number of guest rooms is negative; that the rooms for visitors take large tracts of homes and are underused, and to try to minimise and reduce their volume is positive (INF7).

2: Yes, I think there are no more visitors like before, [so] there is no need for bigger sizes (INF7).

1: There are the kitchen and the store. Supplements room are all-important elements to be considered when we want to buy a home (INF8).

2: I think a supplementary room is an excellent solution to be used for guests and visitors, and dispense with the internal rooms (INF9).

1: Window design is important and is a medium-sized ventilation and design element (INF10, INF11).

2: I [would] reduce the size of the windows because of the fact that the weather in Saudi is very hot (INF10).

1: Gardens are also important and I prefer indoor gardening (EX3).

2: Gardens and outdoor spaces are unsuitable in Saudi Arabia, where the weather is very warm (EX3).

1: I see that the gardens inside the house is a good addition to the environment and natural lighting (SPF3).

1: Air-conditioning is also important and I think that a central air-conditioner is the best (SPF6).

2: An air-conditioner is essential for all rooms (SPF6).

How to identify the quality of the house?

1: Know the quality of finishing and quality of the materials used, but as regards structural elements I think a competent consultant should be brought for this matter (SPF1).

2: You can see quality finishes and materials used through the house, which also reflect the quality, which is very essential when buying (SPF6).

What about fences and how to communicate with the neighbours?

1: I'm with fences and separation from neighbours because they give the required privacy (INF3).

2: I see that the walls are exaggerated and take large swathes of the house (INF3).

1: I think the idea of buying a house at current prices is difficult and best renting home on taking loans.

1: Cash always is the best way to buy.

The rooms and the area?

1: Four bedrooms are enough for every two people together; it's the best room I see socially for the family and an area of 4 * 4 is sufficient (INF4).

2: People prefer that everyone from the family has his own room (INF4).

1: Many of the spaces at home that are not used on a daily basis are unused because they are dedicated to visitors, for example, which originated from the social and cultural matters.

2: Also, even living rooms are not for the family but are equipped for visitors and this has reduced social communication among family members (INF6).

1: A lot of elements we do not need, but we look to the future and the possible need for them, and the impact of the community is the main determinant in the home design.

2: If a small house provides all the special needs, I [think it is] better and less expensive than the large one, and is certainly better than the apartments.

1: 300 m area. I see a model in the event of an external garden, and 150 m in the absence of external gardens, especially the big house with large family. However the privacy less in large areas untapped but if equipped with a design may be a good solution (EX4, EX5).

2: I see that living with your family [is a] good and inexpensive solution and contributes to the family thread; I think to put the top apartments for the sub-family is good.

1: I think the development of private entrances for each apartment [is a] positive solution and gives privacy for all.

2: The neighbourhood sometimes sings for home gardens, where if the neighbourhood has a gardens and footpaths could be an alternative (LF10).

1: The use of the roof garden is good and provides privacy.

1: Exterior design and shape are important, for each should not be overstated in simple interfaces, and make it simple as much as possible.

A small house close to a large city or far away?

2: It is better to have the small (EXF6).

1: I do not see that the great advantage to have a big home in the neighbourhood and the proximity of the city is important (EXF6).

Privacy?

1: I see that there are types of privacy, from neighbours and visitors, to the parents and ending privacy inside the house (INF3).

2: I see the separation of visitors from the home is a good solution and gives privacy for family members (INF3).

1: Windows design will also give privacy from neighbours (INF3, INF10).

2: I think the government should have a greater role in terms of the conditions of the windows, where they should be designed to be opaque so that neighbours can't see in.

If you want to buy a home, what are the main elements to consider and that you look for?

4: Good location and design of the house

3: Location is the most important point, followed by design

What are the most important elements in the location?

4: Services, schools and how far from my work, in addition, the proximity of the parents and distance from the city centre (LF1, LF5).

3: The name of the neighbourhood and the people who live in the area, and also the services and proximity to the family (LF6, LF10).

4: The streets surrounding the house and the access to the neighbourhood, and it's important to know the location of the neighbourhood in the city (LF8, LF12, LF9).

In addition to that ventilation [in the] neighbourhood and being away from the noise and pollution. However, the soil of the location is important, where you need to ask the experts (LF13).

3: Neighbourhoods depend on the city, but in every city there are some neighbourhoods everyone knows are excellent, safe, clean and with a good arrangement in design (LF3, LF4.LF11).

4: I think there are regenerated and safe neighbourhoods and [others that are] not safe in every city. This matter depends on the residents of the neighbourhood and the design of the neighbourhood, so I think the neighbourhood is one of the most important things that will impact on family members (LF3, LF4.LF11).

3: It is true that housing near the parents may be a good solution because of your knowledge of residents of the neighbourhood.

4: Parents often are in a regenerated old city centre and this is a good factor for the nearby services (LF6).

3: Proximity to services and schools also affects the family (LF6).

4: 30 m from mys work is acceptable.

In terms of external design elements, what are the important things?

4: The size of the home area is very important and it depends on the number of family members.

3: I think the size is not important; the important thing is to provide all home needs (EX4).

4: Bigger home size gives comfort outside the home with gardens and open space (EX4, EX3).

A small house near to or far from the big city?

3: Small because it fits my needs in the location; it is important for me to be in the city or near to the city (EX6).

4: I prefer a large private house; it also may be the best for future investment, in addition to the gardens, which is important for me (EX6).

3: I think there are some solutions to the gardens – it could be a roof garden (EX3).

4: Parking space it is important: at least two parking spaces (EX7).

3: Small house, multiple floors meets all the needs and services which I [think is] better than large [one, which does] not meet my needs (EX8).

4: I prefer gardens, and I think that area of home between 400 m-500 m is very suitable (EX3, EX4).

3: I see 300m -350m [as a] good size (EX4).

In the interior design, what are the important elements when you purchase a house?

3: Modern designs and reduce the walls and be functionally comfortable (INF2).

4: I think we need as well a visitors' room and dining room area with a size of 4 * 5, where the visitors' room need to be private. It should cost more, because it is important socially. I think

the living room could be open in the centre of the house and the kitchen is open. The exterior room is important; it could be the visitors' room (INF1, INF2, INF3, INF6, and INF7).

3: The number of bedrooms is important and I think four bedrooms are suitable with a private toilet for each bedroom (INF4, INF5).

4: The budget contributes to the number of rooms, and I think the appropriate number for any family is four to five bedrooms with a private toilet in each bedroom. In addition, I think every home should have a place dedicated to the family (INF4, INF5).

3: It is important that the house is not equipped just for the visitors only; the basis of the house is family members (INF6, INF7).

4: I think the kitchen size could be 3 * 3, [which is] suitable, especially if it is open to the living room. Any extra room at home benefits the home.

3: Have the house cleaner's room or the driver's as a supplementary room.

4: Storage room could be near the car parking (INF8).

Windows and natural lighting?

3: Natural lighting is essential and the presence of a window in every room for ventilation and lighting I think is essential (INF10, INF11).

4: The size of the windows is important but it is also necessary to check the privacy of the windows (INF10, INF11).

3: The presence of foreign gardens do not give privacy; [it is] better [to have a] garden roof (EX3).

4: I think the external fence gives privacy, even though I do not like it (EX1).

3: An outer fence is useful in terms of security and safety (LF3).

4: I do not see that fence [is a] security element; using cameras is better (LF3).

What is the most important element in interior design?

3: Function (INF1).

4: Design and function (INF1).

What are the most important details when you are looking for a house?

4: Insulation, materials and finishing are important details when buying a home, and knowing that the home is equipped with an air-conditioning system (SPF1, SPF4, and SPF6).

3: Central air-conditioning is worth the price increase to get it (SPF6).

4: Green building is good, but there are few in Saudi Arabia. I would prefer it if I find it (SPF3).

3: The sustainable home is good but it should be built with high quality and good implementation; definitely my favourite (SPF3).

Does the age of the house affect the purchase decision?

4: The new house is better; for buying a used house, I think it should not be more than five to six years old (SPF2).

3: The best are new houses, and the used ones must be no more than five years old (SPF2).

4: Quality is important and the age of the house could affect quality (SPF1, SPF2).

Do the government's construction requirements have an impact on home design?

4: Yes, a big impact, and they are one of the reasons for the growing housing problem in Saudi Arabia.

What do you think about living in the family home?

3: Best not to live with the family, but in that case the house [needs to be] equipped with designed units and each unit has its own entrance.

3: In the case of being functionally equipped, I do not mind.

Appendix 4: Full Tables

Descriptive Statistics for all the 13 regions with preferences													
The preferences	The Mean												
	RIYADH	MAKKAH	EAST	HAIL	QASSIM	TABUK	MADINAH	BAHAH	NORTHERN BORDERS	JAWF	JIZAN	ASIR	NAJRAN
Closeness to family LF1	2.10	2.11	2.12	1.79	2.38	2.5	3.13	2.50	2.17	1.67	1.80	2.09	1.80
Quality of the neighbourhood LF2	1.45	1.39	1.40	1.88	1.48	2	1.43	1.50	1.83	3.50	1.90	1.13	2.20
Safety of the neighbourhood LF3	1.30	1.21	1.24	1.79	1.36	1.75	1.35	1.25	1.00	1.67	1.20	1.00	1.60
Cleanliness of the neighbourhood LF4	1.45	1.34	1.41	1.88	1.48	1.92	1.48	1.50	1.83	2.83	1.60	1.39	2.40
Closeness to school LF5	1.93	1.85	1.92	2.17	2.02	2.42	2.09	1.88	2.50	2.83	1.80	1.43	2.20
Services in the neighbourhood LF6	2.01	1.84	1.94	2.29	2.32	2	1.70	1.38	2.17	3.00	1.70	1.65	1.20
Near to public transport LF7	2.57	2.26	2.78	2.79	2.62	2.42	2.35	2.50	3.00	2.17	2.90	2.61	2.80
Accessibility of location LF8	1.68	1.49	1.58	2.08	1.74	1.92	1.78	1.38	2.17	2.83	1.90	1.52	1.60
Street width LF9	2.13	2.13	2.19	2.04	2.56	2	2.30	2.13	2.33	3.00	2.40	2.43	1.40
Name of district LF10	2.01	2.43	2.47	2.29	2.36	2.42	2.13	2.63	2.17	4.00	3.20	3.00	2.60
Design of district LF11	2.14	2.04	2.38	2.25	2.24	2.25	1.91	1.75	1.67	2.83	2.70	2.26	2.80
Fresh air in location LF12	1.53	1.57	1.71	1.67	1.58	1.92	1.52	1.75	2.17	2.67	2.70	1.26	3.00
Soil of land LF13	1.54	1.44	1.73	1.75	1.64	1.92	1.52	1.50	2.17	3.33	2.00	1.30	1.60
Aesthetics EXF1	1.87	1.91	1.74	2.04	2.00	1.83	2.00	1.88	1.50	2.50	2.10	1.57	2.20
Finishing EXF2	1.47	1.48	1.38	1.75	1.68	1.5	1.70	1.25	1.00	2.67	1.50	1.09	1.20
Garden EXF3	2.13	2.26	2.16	2.13	2.42	1.92	2.26	1.88	2.17	3.83	2.70	2.35	3.60
Lot size EXF4	1.86	1.69	1.78	2.13	1.92	1.67	1.74	1.25	1.17	2.50	1.70	1.52	1.20
Building size EXF5	1.83	1.86	1.90	2.21	2.02	1.92	1.83	1.63	1.50	3.33	2.10	1.78	1.40
Bigger home even if it is far from a city EXF6	2.61	2.34	2.42	3.13	2.54	2.58	2.00	2.38	2.33	3.17	2.10	2.30	2.20
Number of parking spaces EXF7	2.44	2.12	2.44	2.38	2.50	2.25	2.43	2.13	2.67	3.33	2.80	2.26	3.20
Number of building storeys EXF8	2.16	2.22	2.25	2.38	2.44	2	2.22	1.88	1.83	2.67	2.10	2.35	2.00
Functionality INF1	1.48	1.51	1.44	1.58	1.70	1.75	1.52	1.25	1.50	2.00	1.40	1.30	1.00
Modern design INF2	2.10	2.24	2.18	2.00	2.14	2.58	2.17	1.88	1.33	2.33	1.90	1.96	2.80
Privacy INF3	1.59	1.58	1.66	1.92	2.02	1.92	1.57	1.50	2.00	3.50	1.80	1.26	2.20
Number of bedrooms INF4	1.79	1.83	1.80	2.00	2.22	1.92	1.78	1.38	1.17	2.17	1.80	1.65	1.20
Number of bathrooms INF5	1.85	1.87	1.86	1.92	2.18	1.92	1.91	1.50	1.33	2.33	1.70	1.83	1.40
Space for family INF6	1.75	1.68	1.78	1.63	2.08	1.92	1.61	2.00	1.67	2.83	2.10	1.52	1.80
Visitors' space INF7	2.46	2.22	2.28	2.04	2.48	2.58	2.39	2.63	1.67	3.33	2.50	2.43	2.60
Storage room INF8	1.87	1.90	1.81	1.83	2.02	2.25	2.26	1.88	2.67	4.17	2.60	2.00	3.00
Facility room INF9	2.06	2.33	2.32	2.08	2.38	2.33	2.30	2.75	2.00	3.33	2.60	2.65	2.60
Size of windows INF10	2.22	2.49	2.46	2.33	2.38	2.83	2.13	2.88	3.50	3.67	3.40	2.65	3.60
Natural light INF11	1.59	1.71	1.52	1.83	1.68	1.92	1.78	2.00	2.67	4.17	2.20	1.70	3.00
Quality of the building SPF1	1.19	1.09	1.08	1.42	1.48	1.67	1.30	1.25	1.17	1.67	1.30	1.04	1.20
Age of the building SPF2	1.53	1.48	1.34	1.79	1.74	2	1.70	1.25	1.17	2.17	1.50	1.43	1.40
The environmentally friendly nature of the building SPF3	2.11	1.99	2.17	1.92	2.22	2.17	2.43	2.00	2.17	3.00	2.50	1.91	3.00
Materials used in the building SPF4	1.36	1.34	1.29	1.50	1.68	1.83	1.52	1.88	1.50	2.33	2.00	1.22	1.80
Insulation SPF5	1.39	1.69	1.51	1.67	1.76	2	2.04	1.50	1.33	2.00	2.20	1.65	2.20
Cold and hot system SPF6	1.38	1.44	1.42	1.67	1.68	1.92	1.52	1.50	1.17	1.83	2.10	1.52	2.80

The preferences	Descriptive Statistics for each group of preferences with all the 13 region												
	RIYADH	MAKKAH	EAST	HAIL	QASSIM	TABUK	MADINAH	BAHAH	NORTHERN BORDERS	JAWF	JIZAN	ASIR	NAJRAN
Closeness to family LF1	2.10	2.11	2.12	1.79	2.38	2.50	3.13	2.50	2.17	1.67	1.80	2.09	1.80
Quality of the neighbourhood LF2	1.45	1.39	1.40	1.88	1.48	2.00	1.43	1.50	1.83	3.50	1.90	1.13	2.20
Safety of the neighbourhood LF3	1.30	1.21	1.24	1.79	1.36	1.75	1.35	1.25	1.00	1.67	1.20	1.00	1.60
Cleanliness of the neighbourhood LF4	1.45	1.34	1.41	1.88	1.48	1.92	1.48	1.50	1.83	2.83	1.60	1.39	2.40
Closeness to school LF5	1.93	1.85	1.92	2.17	2.02	2.42	2.09	1.88	2.50	2.83	1.80	1.43	2.20
Services in the neighbourhood LF6	2.01	1.84	1.94	2.29	2.32	2.00	1.70	1.38	2.17	3.00	1.70	1.65	1.20
Near to public transport LF7	2.57	2.26	2.78	2.79	2.62	2.42	2.35	2.50	3.00	2.17	2.90	2.61	2.80
Accessibility of location LF8	1.68	1.49	1.58	2.08	1.74	1.92	1.78	1.38	2.17	2.83	1.90	1.52	1.60
Street width LF9	2.13	2.13	2.19	2.04	2.56	2.00	2.30	2.13	2.33	3.00	2.40	2.43	1.40
Name of district LF10	2.01	2.43	2.47	2.29	2.36	2.42	2.13	2.63	2.17	4.00	3.20	3.00	2.60
Design of district LF11	2.14	2.04	2.38	2.25	2.24	2.25	1.91	1.75	1.67	2.83	2.70	2.26	2.80
Fresh air in location LF12	1.53	1.57	1.71	1.67	1.58	1.92	1.52	1.75	2.17	2.67	2.70	1.26	3.00
Soil of land LF13	1.54	1.44	1.73	1.75	1.64	1.92	1.52	1.50	2.17	3.33	2.00	1.30	1.60
Aesthetics EXF1	1.87	1.91	1.74	2.04	2.00	1.83	2.00	1.88	1.50	2.50	2.10	1.57	2.20
Finishing EXF2	1.47	1.48	1.38	1.75	1.68	1.50	1.70	1.25	1.00	2.67	1.50	1.09	1.20
Garden EXF3	2.13	2.26	2.16	2.13	2.42	1.92	2.26	1.88	2.17	3.83	2.70	2.35	3.60
Lot size EXF4	1.86	1.69	1.78	2.13	1.92	1.67	1.74	1.25	1.17	2.50	1.70	1.52	1.20
Building size EXF5	1.83	1.86	1.90	2.21	2.02	1.92	1.83	1.63	1.50	3.33	2.10	1.78	1.40
Bigger home even if it is far from a city EXF6	2.61	2.34	2.42	3.13	2.54	2.58	2.00	2.38	2.33	3.17	2.10	2.30	2.20
Number of parking spaces EXF7	2.44	2.12	2.44	2.38	2.50	2.25	2.43	2.13	2.67	3.33	2.80	2.26	3.20
Number of building storeys EXF8	2.16	2.22	2.25	2.38	2.44	2.00	2.22	1.88	1.83	2.67	2.10	2.35	2.00
Functionality INF1	1.48	1.51	1.44	1.58	1.70	1.75	1.52	1.25	1.50	2.00	1.40	1.30	1.00
Modern design INF2	2.10	2.24	2.18	2.00	2.14	2.58	2.17	1.88	1.33	2.33	1.90	1.96	2.80
Privacy INF3	1.59	1.58	1.66	1.92	2.02	1.92	1.57	1.50	2.00	3.50	1.80	1.26	2.20
Number of bedrooms INF4	1.79	1.83	1.80	2.00	2.22	1.92	1.78	1.38	1.17	2.17	1.80	1.65	1.20
Number of bathrooms INF5	1.85	1.87	1.86	1.92	2.18	1.92	1.91	1.50	1.33	2.33	1.70	1.83	1.40
Space for family INF6	1.75	1.68	1.78	1.63	2.08	1.92	1.61	2.00	1.67	2.83	2.10	1.52	1.80
Visitors' space INF7	2.46	2.22	2.28	2.04	2.48	2.58	2.39	2.63	1.67	3.33	2.50	2.43	2.60
Storage room INF8	1.87	1.90	1.81	1.83	2.02	2.25	2.26	1.88	2.67	4.17	2.60	2.00	3.00
Facility room INF9	2.06	2.33	2.32	2.08	2.38	2.33	2.30	2.75	2.00	3.33	2.60	2.65	2.60
Size of windows INF10	2.22	2.49	2.46	2.33	2.38	2.83	2.13	2.88	3.50	3.67	3.40	2.65	3.60
Natural light INF11	1.59	1.71	1.52	1.83	1.68	1.92	1.78	2.00	2.67	4.17	2.20	1.70	3.00
Quality of the building SPF1	1.19	1.09	1.08	1.42	1.48	1.67	1.30	1.25	1.17	1.67	1.30	1.04	1.20
Age of the building SPF2	1.53	1.48	1.34	1.79	1.74	2.00	1.70	1.25	1.17	2.17	1.50	1.43	1.40
The environmentally friendly nature of the building SPF3	2.11	1.99	2.17	1.92	2.22	2.17	2.43	2.00	2.17	3.00	2.50	1.91	3.00
Materials used in the building SPF4	1.36	1.34	1.29	1.50	1.68	1.83	1.52	1.88	1.50	2.33	2.00	1.22	1.80
Insulation SPF5	1.39	1.69	1.51	1.67	1.76	2.00	2.04	1.50	1.33	2.00	2.20	1.65	2.20
Cold and hot system SPF6	1.38	1.44	1.42	1.67	1.68	1.92	1.52	1.50	1.17	1.83	2.10	1.52	2.80

Descriptive Statistics for each group of preferences with the professionals' job titles				
The preferences	**Real estate office**	**Real estate development company**	**Construction and design**	**Government**
Closeness to family LF1	2.02	1.97	1.98	1.77
Quality of the neighbourhood LF2	2.58	2.62	2.27	2.32
Safety of the neighbourhood LF3	2.79	2.56	2.39	2.22
Cleanliness of the neighbourhood LF4	2.77	2.51	2.88	2.52
Closeness to school LF5	2.96	3.13	2.95	2.77
Services in the neighbourhood LF6	1.57	1.41	1.73	2.28
Near to public transport LF7	4.30	3.90	4.27	3.55
Accessibility of location LF8	2.70	2.33	2.39	2.78
Street width LF9	2.70	2.49	2.44	2.57
Name of district LF10	3.13	2.46	2.51	2.58
Design of district LF11	3.30	2.97	3.51	2.35
Fresh air in location LF12	4.19	3.82	3.73	2.51
Soil of land LF13	4.28	3.87	4.00	2.62
Aesthetics EXF1	1.92	1.72	1.73	1.72
Finishing EXF2	2.32	2.00	1.95	2.25
Garden EXF3	3.81	3.77	3.71	3.12
Lot size EXF4	2.42	2.28	1.90	2.34
Building size EXF5	2.85	3.03	2.98	2.62
Bigger home even if it is far from a city EXF6	3.85	3.26	3.51	2.92
Number of parking spaces EXF7	4.38	4.10	3.83	3.52
Number of building storeys EXF8	3.38	3.05	3.12	2.60
Functionality INF1	1.89	1.44	1.93	1.85
Modern design INF2	2.21	1.90	1.88	2.75
Privacy INF3	2.53	2.41	2.85	2.06
Number of bedrooms INF4	2.47	2.10	2.32	2.03
Number of bathrooms INF5	3.43	2.77	3.15	2.03
Space for family INF6	2.60	2.92	3.10	2.58
Visitors' space INF7	2.57	2.33	2.32	2.29
Storage room INF8	3.28	3.28	3.17	3.06
Facility room INF9	2.83	2.72	3.17	2.58
Size of windows INF10	4.25	4.00	3.85	3.28
Natural light INF11	3.94	3.90	3.93	3.03
Quality of the building SPF1	1.92	1.67	1.90	1.75
Age of the building SPF2	2.45	2.10	2.32	2.05
The environmentally friendly nature of the building SPF3	3.74	4.00	4.15	3.09
Materials used in the building SPF4	2.96	3.00	3.17	2.28
Insulation SPF5	3.36	3.56	3.39	2.82
Cold and hot system SPF6	3.62	3.84	3.88	3.25

The preferences	Descriptive Statistics for each group of preferences with the professionals' job titles			
	Real estate office	**Real estate development company**	**Construction and design**	**Government**
Closeness to family LF1	2.02	1.97	1.98	1.77
Quality of the neighbourhood LF2	2.58	2.62	2.27	2.32
Safety of the neighbourhood LF3	2.79	2.56	2.39	2.22
Cleanliness of the neighbourhood LF4	2.77	2.51	2.88	2.52
Closeness to school LF5	2.96	3.13	2.95	2.77
Service in the neighbourhood LF6	1.57	1.41	1.73	2.28
Near to public transport LF7	4.30	3.90	4.27	3.55
Accessibility of location LF8	2.70	2.33	2.39	2.78
Street width LF9	2.70	2.49	2.44	2.57
Name of district LF10	3.13	2.46	2.51	2.58
Design of district LF11	3.30	2.97	3.51	2.35
Fresh air in location LF12	4.19	3.82	3.73	2.51
Soil of land LF13	4.28	3.87	4.00	2.62
Aesthetics EXF1	1.92	1.72	1.73	1.72
Finishing EXF2	2.32	2.00	1.95	2.25
Garden EXF3	3.81	3.77	3.71	3.12
Lot size EXF4	2.42	2.28	1.90	2.34
Building size EXF5	2.85	3.03	2.98	2.62
Bigger home even if it is far from a city EXF6	3.85	3.26	3.51	2.92
Number of parking spaces EXF7	4.38	4.10	3.83	3.52
Number of building storeys EXF8	3.38	3.05	3.12	2.60
Functionality INF1	1.89	1.44	1.93	1.85
Modern design INF2	2.21	1.90	1.88	2.75
Privacy INF3	2.53	2.41	2.85	2.06
Number of bedrooms INF4	2.47	2.10	2.32	2.03
Number of bathrooms INF5	3.43	2.77	3.15	2.03
Space for family INF6	2.60	2.92	3.10	2.58
Visitors' space INF7	2.57	2.33	2.32	2.29
Storage room INF8	3.28	3.28	3.17	3.06
Facility room INF9	2.83	2.72	3.17	2.58
Size of windows INF10	4.25	4.00	3.85	3.28
Natural light INF11	3.94	3.90	3.93	3.03
Quality of the building SPF1	2.23	2.21	2.20	3.02
Age of the building SPF2	2.94	2.92	3.12	3.52
The environmentally friendly nature of the building SPF3	3.28	3.21	3.29	4.09
Materials used in the building SPF4	2.47	2.10	2.39	3.62
Insulation SPF5	3.17	2.95	3.12	3.66
Cold and hot system SPF6	1.92	1.67	1.90	1.75